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Supplement to the Account of Plague Administration  
in the Bombay Presidency from September 1896  
till May 1897.

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FROM

THE CHAIRMAN,  
Poona Plague Committee ;

TO

THE SECRETARY TO GOVERNMENT,  
General Department.

*Poona, 13th August 1897.*

SIR,

I have the honour to submit the report on the Poona Plague operations prepared by the late Mr. Rand. I have not touched the report, but forward it, with its appendices, just as it was drafted by him.

2. I also have the honour to submit two notes by Surgeon-Captain Beveridge, late member of the Poona Plague Committee.

3. Mr. Rand's report brings the story of the operations down to May 20th, and in a few instances down to May 31st. Since then the operations have been carried on on a different system, which is still in force. The time for reporting on it does not seem to have yet arrived, and I have therefore not attempted to carry the report further than the point at which Mr. Rand left it.

4. I have signed many of the appendices not as having been prepared by or under me, but merely to authenticate them.

5. Mr. Rand mentions in various paragraphs the names of those who have done good work. To his own organizing and directing power, as Chairman of the Committee, the success attained is greatly due. The operations were on a large scale employing many men from various services, and could not have been carried out, but by a man of great administrative ability, unflinching tact, clear head and tireless devotion to duty.

6. It would perhaps be invidious for me to select for special mention any of the officers and other workers whose names are given by Mr. Rand. It is difficult, however, to refrain from drawing attention to his appreciation of the work of Major Paget, Surgeon-Major Barry and Surgeon-Captain Jones ; Mr. Plunkett, C.I.E., has won the praise and gratitude of all by his untiring services ; Lieutenant-Colonel Newnham-Smith has especially recommended to me his Executive Officer, Mr. M. H. Dastur ; the commendation bestowed on Hospital Assistant Hiranamuck by Surgeon-Major Barry is deserving of the notice of Government ; and I think it is right to add that the Municipal Secretary Mr. M. K. Kumthekar in a trying position has worked extremely hard and well, with unflinching industry and good-will, and the Committee's clerk, Mr. G. S. Phadke has done the heavy work of the office from early morning to late at night, earning the approval of the Committee.

7. As regards the non-official and unpaid helpers, Mr. Jaffar Jussuff has already received the recognition of Government ; and as to others I purpose to, if possible, submit a separate report, indicating those who worked with the Committee, and those who might have been expected to and did not.

I have the honour to be,

Sir,

Your most obedient Servant,

R. A. LAMB,

Chairman, Poona Plague Committee.



DRAFT OF REPORT TO GOVERNMENT BY THE LATE MR. W. C.  
RAND, I.C.S., CHAIRMAN, POONA PLAGUE COMMITTEE.

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I have the honour to submit, for the information of Government, a report on the measures that have been taken to suppress and prevent the spread of bubonic plague within the limits of the City and Suburban Municipalities of Poona and the Poona Cantonment. The operations against the plague are not concluded at the time of writing this report, which deals with the measures taken up to May 20th, 1897. My report is divided into 16 sections, the contents of which are specified below :—

- I.—Introductory.
- II.—The plan of campaign.
- III.—Work of the military search, disinfection and segregation parties in Poona City.
- IV.—Plague work performed by Municipal agency in Poona City.
- V.—Conservancy in Poona City.
- VI.—Work in Poona Cantonment.
- VII.—Work in Poona Suburban limits.
- VIII.—Work in villages round Poona.
- IX.—Hospitals.
- X.—Segregation Camps.
- XI.—Plague and mortality statistics and death registration arrangements
- XII.—Inspection of in-comers and out-goers.
- XIII.—Inoculation.
- XIV.—The troops employed.
- XV.—Financial.
- XVI.—Conclusion.

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I.—INTRODUCTORY.

The outbreak of bubonic plague with which I have to deal in this report is the first that has occurred in Poona within the memory of living man, while of the occurrence there of a similar epidemic in former times I am not aware of any authentic record. At the time of the present outbreak the disease was quite unknown to the inhabitants of this part of India.

2. There is little doubt that the primary cause of the plague epidemic from which Poona has suffered was the introduction from Bombay into Poona of plague-infected passengers and property. The causes which enabled the disease after its introduction to take a firm root in Poona were—

(1) the existence of insanitary conditions which enabled the disease to find a home;

(2) the omission to take in due time the measures necessary to stay its progress.

3. I possess no reliable information of the date of the first coming of the plague to Poona. The first cases reported were those of two passengers from Bombay who were found at Poona Railway Station suffering from plague on October 2nd, 1896. Though persons suffering from plague may have and probably did come to Poona before that date, there is no reason to suppose that they came in considerable numbers, and for practical purposes the disease may be deemed to have first appeared at the beginning of October 1896. The first indigenous cases of plague which are known to have occurred were reported in Poona City on 30th December 1896. The disease spread rapidly over Poona in January 1897, by the end of which month it had taken a firm hold of the city.



4. The first measure adopted for the protection of Poona from the plague was the appointment of a medical man on September 30th, 1896, to watch passengers from Bombay at the Poona Railway Station. At the same time sheds were erected near the Sassoon Hospital for the reception of plague patients. There was at that time, however, no legal means of compelling sufferers to go to the sheds against their will. From October special attention was paid to the general conservancy of Poona City, but till January 1897 no application was made by the City Municipality for special powers to deal with the disease. At a meeting held on January 13th, 1897, the City Municipality took into consideration the question of obtaining special powers under Section 73 of Bombay Act VI of 1873 for the suppression of the bubonic plague, and regulations under that section were finally sanctioned by the Commissioner, Central Division, for Poona City on January 29th. An Assistant Health Officer had in the meanwhile been told off for plague duty on the 25th of that month. At the beginning of February the Sanitary Commissioner for the Government of Bombay directed Surgeon-Captain Lloyd Jones to proceed to Poona and take charge of the office of the Deputy Sanitary Commissioner, Central Registration District, as he considered that an officer of some standing was required to assist and guide the Poona City Municipality in their efforts to put an end to the outbreak. His proceedings were approved in Government Resolution No. 689 of 9th February 1897, General Department, Surgeon-Captain Lloyd Jones having in the meanwhile arrived at Poona on February 8th. From that day till my arrival he exercised a general control over such operations as were in progress.

5. By Government Resolution No. 1134 of 10th February 1897, Revenue Department, I was appointed to be Assistant Collector, Poona, and to have charge of the operations against plague in Poona City. I assumed charge of my appointment on February 19th. My first duty was to ascertain the extent to which the disease had already spread. On examining the current death register of the Poona Municipality and the mortality returns for previous years I discovered that the mortality of the City had been growing at an alarming rate since the beginning of January. I learnt that there was no abnormal sickness in the city other than plague, and I came to the conclusion that the epidemic was far more widely spread than the Municipal returns of plague attacks and plague deaths indicated. In my letter No. 3 of 20th February 1897, to the Collector of Poona, I suggested that Collectors and Political Agents in the Bombay Presidency should be informed that bubonic plague was firmly established in Poona with a view to their dissuading persons residing in their charges from visiting that city. On the same day in my letter No. 6 to the Collector I pointed out that Poona had become a very dangerous plague centre and suggested the making of additional arrangements for the examination of passengers proceeding by rail from Poona to unaffected parts of India. Orders for the examination of passengers by rail at Dhond and Rájewádi were finally issued by Government in Government Resolution No. <sup>1235</sup>/<sub>72c</sub> of 6th March 1897, General Department.

6. After bringing the dimensions of the epidemic to the notice of higher authority, I engaged in the preparation of a scheme for eradicating the plague from Poona City, in which task I was assisted by Surgeon-Captain W. W. O. Beveridge, A.M.S., who was posted to Poona as my special assistant for plague purposes by Government Resolution No. <sup>1099</sup>/<sub>480P</sub> of 24th February 1897, and joined his appointment on 23rd February 1897. Up to the time of Surgeon-Captain Beveridge's arrival, the use of anything but civil agency for dealing with the epidemic had not been considered. That officer, however, who had had considerable experience of the plague in Hongkong and the methods adopted there for stamping it out, formed a decided opinion that the help of soldiers would be desirable in Poona, especially for the purposes of searching for sufferers from the plague, their removal to suitable hospitals, and the disinfection of plague-infected houses. His views were embodied in a report dated 25th February 1897, which I forwarded to Government with my No. 54 of 27th February 1897. At the same time I submitted to Government a draft set of rules under Act III of 1897, which I considered would be needed if the plague was to be effectually

dealt with in Poona City. The advisability of employing British soldiers to make house-to-house inspection in the cantonment as well as in the city was brought to the notice of Government in the Collector's No. 2465 of 28th February 1897. In that letter Mr. Lamb expressed the following opinion :—

“The aid of the soldiers is needed because the men are available, they are disciplined, they can be relied on to be thorough and honest in their inspection, while no native agency is available, or could be relied on if it were.”

7. It was finally decided that volunteers should be called for from the British and Native armies to assist in the work of stamping out the plague, and a Committee was appointed by Government Resolution No.  $\frac{1272}{765P}$  of 9th March 1897 for the purpose of carrying out under the orders of Government the measures to be taken to suppress and prevent the spread of bubonic plague within the limits of the City and Suburban Municipalities of Poona and the Poona Cantonment. Powers to enable the Committee to perform the duties entrusted to it were conferred by the same rules. Additions to and modifications in these rules have been subsequently made by Government Resolutions Nos.  $\frac{1810}{1264P}$  of 2nd April,  $\frac{2190}{1624P}$  of 24th April,  $\frac{2396}{1861P}$  of 3rd May and  $\frac{2591A}{1388A.P}$  of 12th May 1897. The Committee as constituted on March 9th consisted of myself as Chairman, and Lieutenant-Colonel C. R. Phillipps, I.S.C., and Surgeon-Captain W. W. O. Beveridge, A. M. S., as members. On June 3rd, 1897, Lieutenant-Colonel Phillipps who had been obliged by ill-health to take leave to England, ceased to be a member of the Committee (*vide* Government Resolution No.  $\frac{3081}{2295P}$  of 3rd June 1897).

8. Prior to the appointment of the Plague Committee a General Plague Hospital had been erected at the Sangam to which the plague patients at the Sassoon Hospital had been removed. Considerable progress had been made in the construction of a General Segregation Camp on the Shankarshet Road and sanction had been accorded to the construction of Plague Hospitals by members of the Hindu and Musalmán communities, and in the case of the latter community of a segregation camp as well. Surgeon-Major J. P. Barry, who had been appointed by Government Resolution No.  $\frac{876}{346P}$  of 17th February 1897, to do duty in the city of Poona, had arrived on the 27th of that month and had been placed by me in charge of the general conservancy of the city and also entrusted with the supervision of segregation camps and plague hospitals.

9. As already stated the Plague Committee was invested with authority over Poona City, Poona Suburban Municipal district and Poona Cantonment. The area and population of each of these is given below :—

Name of District.	Area in square miles.	Population (by Census of 1891).	Remarks.
Poona City ...	4.9	118,790	Includes persons travelling by rail.
Poona Suburban limits ...	3.75	7,506	
Poona Cantonment...	4.25	35,094	
Total ...	12.9	161,390	

In the accompanying map (Appendix 1) the boundaries of these three districts are shown, and the situations of the principal places connected with the operations are indicated.

## II.—THE PLAN OF CAMPAIGN.

Before describing the measures taken by the Plague Committee to perform its appointed task, measures which were perhaps the most drastic that had ever been taken in British India to stamp out an epidemic, it is advisable to give some account of the circumstances which in the Committee's opinion rendered them necessary.

2. By the end of February 1897 the bubonic plague had got a firm hold of the city of Poona. Spreading from Bombay where it had originated in



September 1896 or earlier, it had established itself in Karáchi, Báandra and other places as well as in Poona. The measures taken to dislodge it from places where it had once obtained a footing had been everywhere unavailing. In none of these places had the compulsory segregation of the sick, much less of the apparently healthy, inmates of infected houses been systematically enforced. On the other hand, the large cities of Surat and Ahmedabad had been kept almost entirely free from plague, though they had been flooded with refugees from Bombay just as Poona had been. In Surat and Ahmedabad, however, the segregation of the plague-stricken had been enforced as far back as October 1896. There was, it is true, no Indian example of the suppression by strong measures of an epidemic of plague which had established itself in a large town, but the possibility of so suppressing the disease had been demonstrated at Hongkong in 1894. It was certain that if the plague was not to be allowed to run its course but was to be stamped out of Poona, stringent measures would have to be taken.

3. It was moreover palpable to every one that the measures so far taken in Poona had been utterly unavailing to stay the course of the epidemic. The state of the city was one of panic. A large proportion of the leading men of the place had already left or were preparing to leave Poona on account of the outbreak. Several of the Municipal Commissioners and Honorary Magistrates were among the deserters. The majority of the Gujaráthi and Márwádi traders were closing their shops and returning to their native countries. The mass of the people were as a natural consequence of their ignorance opposed to segregation either of the sick or of apparently healthy persons who had been exposed to infection. Most of the influential men left in the town declared themselves in favour of the principle of segregation, but their ideas on the subject were generally crude and few if any of them were reconciled to the application of it to persons of their own position in life. Another fact to be reckoned with was that a section of the Bráhmín community, including some of the most influential men in the city, were disinclined to support any measures that emanated from an official source, and were more likely than not to work against any operations that might be set on foot by Government to deal with the emergency.

4. An important factor too in the situation was the state of the labour market. Many labourers were leaving the town on account of the epidemic, and owing to the panic that prevailed those who remained could not be relied on to work regularly especially if there was an element of danger in the work to be done. It was therefore difficult to carry on limewashing and other measures of disinfection on a large scale with private labour. Under these circumstances it would have been unsafe to attempt to carry out any extensive operations against the plague without a disciplined and reliable agency. It was of the utmost importance to crush the epidemic with the least possible delay, both to stay the great mortality that was taking place in Poona and to prevent the spread of the disease to the other towns of the Deccan, in none of which had it so far attained epidemic dimensions.

5. It was finally decided by Government, after consultation with the military authorities, that volunteers for plague duty should be called for from among the troops, British and Native, stationed in Poona and Kirkee. The call was readily responded to, and it was found that many more volunteers than were likely to be required were willing to come forward. A plague duty camp was accordingly formed at Parvati on the Sinhgad road, and 893 officers and men, British and Native, under the command of Major Paget of the Durham Light Infantry, were placed on plague duty on 12th March 1897. Of these, 122 officers and men were posted as guards at the hospitals and segregation camps and the remainder went into the Plague Duty Camp at Parvati. It had been contemplated to place a cordon of Native troops round Poona to prevent the egress of the public during the operations, but the proposal was abandoned.

6. I will now describe the Plague Committee's plan of operations.

The measures which were chiefly relied on for stamping out the plague were three in number—

(1) The removal of the plague-stricken to plague hospitals.



(2) The removal of persons who were apparently healthy, but had been exposed to plague infection, to segregation camps.

(3) The disinfection of houses and moveable property which had been exposed to infection.

7. For the first of these measures the requisites were properly equipped plague hospitals and a reliable agency for finding and removing plague patients.

The plague hospitals in use during the operations were five in number—

- (1) The General Plague Hospital at the Sangam.
- (2) The Mahomedan Plague Hospital on the Shankarshet Road.
- (3) The Hindu Plague Hospital near the Jakdi Pul.
- (4) The Sassoon Hospital (for Europeans and observation cases only).
- (5) The Parsi Plague Hospital near the Rifle Range.

Of these the first and the fourth were under official management, while the second, third and fifth were managed by private individuals subject to the control of the Plague Committee. The removal of all persons known or suspected to be suffering from plague to one or other of these hospitals was insisted on. For finding and removing plague patients to hospital, both military and civil agency was used. The military agency used consisted of search parties composed of soldiers working under the command of British Officers, and attended by native gentlemen, lady searchers and medical officers. The duty of the search parties was to search periodically all houses and other places where sick persons were likely to be within the area subject to the Plague Committee in order to discover plague cases and unburied corpses. All sick persons found in the search were examined by a Medical Officer, and if he found or had reason to suspect that they were suffering from plague, they were forwarded to a plague hospital. Arrangements were made for the disposal of unburied corpses either by the friends of the deceased or by men told off for that duty. The civil agency used for the detection and removal of plague patients consisted of medical subordinates who were assisted by Municipal Inspectors and worked under European supervision. Their duty was to obtain information by all means in their power of the occurrence of plague cases within the local areas assigned to them, and to remove the sufferers to hospital.

8. For the reception of apparently healthy persons who had been exposed to plague infection there were four segregation camps—

- (1) The General Segregation Camp on the Shankarshet Road.
- (2) The Mahomedan Segregation Camp on the Shankarshet Road.
- (3) The Cantonment Segregation Camp near the Rifle Range.
- (4) The Parsi Segregation Camp near the Rifle Range.

The persons liable to be removed to a segregation camp were the inmates of buildings which were believed to have been occupied by sufferers from plague and also the inmates of buildings where it was believed that any death had occurred which had not been certified by a Medical Officer holding Her Majesty's Commission or some other Medical Officer empowered by the Plague Committee to certify in that behalf to be due to some cause other than plague. Persons found in the company of a sufferer from the plague were also liable to be segregated. The period of detention in the segregation camps was 10 days. Persons found at any time during that period to be suffering from plague were removed to a plague hospital. Segregation parties composed of Native Infantry were appointed for the removal to the camps of the persons liable to segregation.

9. The work of disinfecting infected houses and their contents was carried out chiefly by military, but in part by civil agency in Poona City. In Poona Cantonment and in Suburban limits it was carried out entirely by civil agency. The troops employed on disinfection work were divided into fumigators and lime-washers, all of whom worked under the command of British Officers. Disinfection with perchloride of mercury and other chemicals as well as fumigation

was performed by the fumigators, while the lime-washers broke up floors and destroyed rubbish in infected houses in addition to doing the work which gives them their name. In Poona City disinfection was only carried out by civil agency in houses where plague cases had been discovered by the Municipal establishment. Little lime-washing was done by civil agency in the city after the operations of the military commenced.

10. A warehouse was opened at a central situation in Poona City for the storage of the contents of houses from which the occupants had been removed to hospitals or segregation camps.

11. In addition to the operations against the plague which have been sketched above, efforts were made to keep the general sanitation of the whole area under the Plague Committee up to an exceptionally high standard, and special conservancy establishments were employed for that purpose.

12. To minimize the chance of disturbances when troops were engaged on plague duty in the city and cantonment, the streets were patrolled by Native Cavalry, and during a portion of the operations a main picquet of Native Infantry was stationed at a central point.

13. The Committee attached great importance to the punctual registration of all deaths that occurred, and employed special establishments both to register deaths and to prevent the secret disposal of corpses of persons whose deaths had not been registered.

14. As it was found that plague-stricken people were constantly removed from Poona by night, picquets and patrols of Cavalry and Infantry were placed on some of the principal roads to prevent their egress.

15. Towards the close of the operations the villages round Poona were searched in order to ascertain whether they were infected by plague.

16. Arrangements were made by Surgeon-Major Street in consultation with the Plague Committee for the medical inspection of all passengers arriving at or departing from Poona by rail.

17. A Medical Officer, who had been instructed by Doctor Haffkine, was specially deputed for the duty of carrying on inoculations with Doctor Haffkine's prophylactic lymph.

18. Plague operations in Poona City were retained by the Plague Committee under their immediate control. Colonel Newnham Smith, Cantonment Magistrate, and Mr. A. H. Plunkett, C.I.E., were empowered to exercise within the limits of Poona Cantonment and Poona Suburban Municipality all the powers of the Plague Committee under Nos. 4, 5, 6, 7, 8, 9 and 14 of the Rules published in Government Notification No. 1272—765-P of 9th March 1897. The Plague Committee exercised, however, a general control over operations within those areas.

19. The work done by the members of the Plague Committee personally may be noticed at this point. The members of the Committee met almost daily (Sundays generally excepted) in March and April to confer on questions of importance connected with the operations. After April less frequent meetings were found to suffice.

20. I conducted the general correspondence, and managed the financial affairs of the Committee besides drafting the Committee's rules and standing orders. I daily superintended the work of the troops in the city and moreover exercised, as far as I could, a general supervision over all branches of the Committee's administration. Lieutenant-Colonel Phillips, as long as his health permitted him, carried on the Committee's correspondence with the Military authorities. He daily superintended the work of the military in the city and attended to all matters connected with the discipline and welfare of the troops, besides assisting his colleagues in the general supervision of hospitals and segregation camps.

Surgeon-Captain Beveridge held charge of the General Segregation Camp, and for part of the operations superintended the Mahomedan Hospital and Segregation Camp. He also worked with the military search parties daily as a Medical Officer, and in addition supervised the issue of disinfectants.



### III.—WORKS OF THE MILITARY SEARCH, DISINFECTION AND SEGREGATION PARTIES IN POONA CITY.

#### *The Search Parties.*

A house-to-house inspection by military search parties has been one of the leading features in the Plague Committee's plan of operations, and to nothing in the campaign did they attach greater importance. Before the Plague Committee was constituted it had been demonstrated by experience that there was intense aversion among all classes of the townsfolk to the removal of their plague-stricken relatives to hospital. Incredible shifts were resorted to to prevent the authorities from becoming aware of the occurrence of cases. Plague patients were hidden in lofts, cupboards and gardens—anywhere in fact where their presence was least likely to be suspected. Medical attendance of any description was rarely obtained, as it was feared that the calling in of a medical practitioner might lead to the removal of the patient. As a rule the authorities only heard of a case of plague after the patient's death. It was hopeless to attempt to stay the course of the epidemic so long as the isolation of plague patients was not effectually carried out, and this, in view of the antipathy to the segregation of the infected which existed in Poona could only be done by compulsory methods.

2. The main difficulty, apart from the question of agency in the way of the organization of a house-to-house inspection, lay in the religious and social customs of the Hindus and Mahomedans who between them make up nearly the whole of the population of the city of Poona. The religious customs of the Hindus forbade people of other races to enter their god-rooms and cook-rooms. The females of the better class Mahomedan families were all purdah women. Among all classes of the population, except perhaps the very lowest, there existed an aversion to the invasion of their privacy which is unknown in Western Europe. Again a systematic search of houses by military agency was a novelty in Poona, and was on that account likely to be regarded with distrust and alarm.

3. It was thought necessary that the burden of the search should be borne by British soldiers as they were the most disciplined and trustworthy agency that could be obtained, but it was at the same time recognized that owing to their ignorance of the language and customs of the Natives, and the existence of customs and feelings among the latter which we were bound to respect, they could not be the only agency employed. It was accordingly decided that Native gentlemen should be attached to the search parties to explain to the public the objects of the search, to act as interpreters between the soldiers and the public and to point out to the soldiers the portions of houses which custom forbade them to enter. It was also resolved that the search parties should be accompanied by ladies to search rooms occupied by purdah women. As far as possible ladies possessing some knowledge of disease were selected for this work.

4. To get volunteers from among the Native gentry to accompany the search parties I called a meeting at the Jubilee Technical Institute on the 11th March when 51 volunteers were enrolled. The services of additional Native gentlemen to accompany the search parties were advertized for on 12th March and again on 16th March.

The ladies who accompanied the search parties were, with the exception of three Mission ladies who volunteered their services, paid employés of the Committee.

5. The manner in which the search was actually conducted will be learnt from the accompanying printed directions for searchers (Appendix 2). They were approved by the Plague Committee on March 24th, and thereafter to the end of the operations the search was carried on in substantial accordance with them. The directions in force when the operations commenced were on the

same lines, but less detailed, and were found after a few days' experience to require amplification.

6. For the purposes of searches and other plague operations the city was divided in five sections numbered I to V. Each section was divided into six divisions distinguished by the letters A to F. The accompanying map (Appendix 3) shows the sections and divisions into which the city was divided.

7. The "Directions for searchers" were published for the information of the public, as were the Notifications contained in Appendix 4.

8. The work of the search parties in the city commenced on March 13th and ended on 19th May. In the first instance, only two search divisions, each consisting of 10 parties of three British soldiers were employed. Each division was under the command of an Officer and had a Medical Officer attached to it besides lady searchers. Each party was accompanied by a Native gentleman. The officers commanding the search divisions were provided with maps on which the areas their men had to search were shown. In order that plague patients might not be removed before the arrival of the troops, no intimation as to what area was to be searched was given to the public. The streets in which the search took place were patrolled by Cavalry. The only important complaint about the first day's work was that doors forced open by the troops were not reclosed. This difficulty was got over on subsequent occasions by attaching to each search division a few Native troops with hammers and staples to fasten up doors after the searchers. Search work was carried out by two divisions daily till March 22nd, from which date up to May 19th six search divisions worked in the city. From March 22nd onwards one of the five sections into which the city had been divided was searched daily. The six search divisions were distinguished by the letters A to F. They always worked in the local divisions of the sections that bore corresponding letters on the plague map. It, therefore, happened that after the whole of the city had been once worked through the search divisions did not have to go over ground with which they were unfamiliar. When the operations commenced, it took a search division about  $4\frac{1}{2}$  hours to search the area assigned to it, but the work was done much more expeditiously towards the close of the operations when the cases discovered were few in number and the men were familiar with their duties.

9. Up to March 22nd it was usually found possible to attach a Native gentleman to each search party. When, however, the total number of search parties was increased to 60 it was impossible to do so, as the number of gentlemen who came forward for this duty seldom exceeded 20 on any day. Thereafter two or three Native gentlemen usually accompanied each search division.

10. Of the six search divisions three were at first accompanied by European Medical Officers and the remainder by men of the Hospital Assistant class. The work of the latter, however, not being found to be very satisfactory, they were relieved of their duties and the European Medical Officers were placed in charge of two divisions each. The officers employed on this duty were Surgeon-Captain Beveridge, Surgeon-Captain Lloyd Jones and Surgeon-Lieutenant Kiddle. These officers were supplied with cash advances and had instructions to pay compensation for any articles belonging to plague patients that might be destroyed.

11. On May 4th the constitution of the search parties was altered from three British to two British and one Native soldier. On May 13th the strength of each search division was reduced from 10 to 7 parties. It was found that even with these reduced numbers a search division could get through its morning's work more quickly than it had been able to do in the early days of the operations.

12. The work of the search parties as well as of the fumigation and limewashing parties was carried on every morning of the week except on Sunday. The troops usually had a march of from two to three miles from Camp before they commenced work which was started in the city at about 6-30 A.M. On one occasion an afternoon search was made. It was found, however, that search work twice a day was too much for the men, and the experiment was not repeated.



13. The house-to-house inspection was rendered difficult by the way in which buildings in the city were entangled together, often forming veritable mazes, and affording facilities to persons who knew the ground to avoid search parties. The darkness of many of the rooms in Native houses made it necessary to search them by the light of a lantern.

14. In order that they might exercise proper control over their men, Officers commanding search divisions were required to keep their search parties together under their own eyes as much as possible, the object in view being to prevent the men from loitering or getting into mischief.

15. The attitude of the inhabitants of the city towards the search parties was, on the whole, friendly, though people who had sick in their houses usually tried to conceal them. The Brámin community was the only one whose behaviour towards the troops employed was generally unfriendly. In the Brámin quarters the troops met with a good deal of obstruction, which, however, always stopped short of forcible resistance.

16. Of the Native gentlemen who volunteered to accompany the search parties the majority did not attend regularly and some did not attend at all. The following are the gentlemen who are reported by the Officers commanding the search divisions to have rendered useful service :—

Professor S. Moulvi of the Deccan College.

Doctor Anant Bhavanishankar.

Nabáb Abdul Ferozkhan.

Sirdár Bahádur Subhedár Major Shaik Esmail, late 7th Bombay Infantry.

Subhedár Major Shaik Umar Bahádur, late 10th Bombay Infantry.

Sirdár Bahádur Subhedár Rajanasu, late Bombay Sappers and Miners.

Subhedár Ramchandra, late 7th Bombay Infantry.

Subhedár Major Rattan Mehta, late 17th Bombay Infantry.

Subhedár Shalom Esmail.

Subhedár Bandehji Robinaji.

Of the gentlemen who have rendered the best service the majority are retired Native Officers. Professor Moulvi appears to have been specially useful in discovering concealed cases.

17. Of the ladies that accompanied the search divisions the following rendered valuable assistance :—

Miss Bernard.

Doctor Miss L. Bernard.

Doctor Miss Crawley.

Miss McIntosh.

Miss Dias.

Mrs. Goodall.

The two first named ladies belong to the Church of Scotland Mission, while the third is in charge of the Panch Howds Mission Dispensary. All three ladies gave their services without remuneration, and I cannot speak too highly of the devoted work they did. Miss McIntosh who had had considerable experience of plague-nursing in Hongkong, was an invaluable assistant to the search parties till April 18th, when she was transferred to the General Plague Hospital on nursing duty. Miss Dias and Mrs. Goodall, the former of whom is a local medical practitioner and the latter a monthly nurse, proved themselves reliable and energetic as lady searchers.

18. The result of the search work on each day of the operations is given in Appendix 5. From March 13th to May 19th 218,124 houses were searched, and 338 plague cases and 64 corpses were found. The houses in the city were searched on an average 11 times each. The sufferers from the plague were removed to hospital, and arrangements were made for the prompt disposal of the corpses. The full value of the work done by the search parties cannot be gauged by the number of cases they discovered. The institution of the search by the

military had the effect of causing the public to give information to the Municipal authorities of a large proportion of the cases that occurred, and in many instances even to take patients to hospital without official pressure having been exercised.

*The Fumigation Parties.*

19. The disinfection by fumigation or otherwise of infected houses and their contents was an essential part of the Plague Committee's scheme. Particulars of the constitution of the military fumigation parties and of the duties assigned to them will be found in the printed "Directions for Fumigators" (Appendix 6). These directions were framed by the Committee and published for the information of the public.

20. When the operations of the military commenced on March 13th there were two fumigation divisions, each consisting of 10 parties and under the command of a British officer. From March 22nd, when the number of search divisions was increased to 6, the number of fumigation divisions was increased to 3. On April 1st the number of fumigation divisions was reduced from 3 to 2, and on April 9th from 2 to 1, the number and constitution of the parties in a division remaining unaltered. On May 6th the strength of the fumigation division was reduced to four parties, and on May 13th the strength was further reduced to two parties. On May 6th the fumigation and limewashing divisions were put under the same officer.

21. Before the operations of the military commenced, a list was prepared of all the houses in the city in which plague cases or deaths from any cause had occurred since March 1st and which had not already been disinfected. All houses on this list had to be dealt with by the fumigators. Thereafter they were supplied daily with a list of houses from which fresh plague cases or deaths from any cause had been reported to the Municipal authorities. In addition to the houses entered in these lists all houses in which cases or plague corpses were found during the morning's search had to be disinfected.

22. The preparation of correct lists of houses for fumigation was found to be a matter of considerable practical difficulty. Persons who reported deaths at the Municipal Office constantly gave the address of the deceased incorrectly, thereby exposing an uninfected house to disinfection and its inmates to the inconveniences of segregation. To get over this difficulty, the Municipal Conservancy Inspectors were entrusted with the duty of verifying the addresses at which plague attacks and deaths had occurred. The work was indifferently performed by them and was accordingly made over to the Assistant Masters from the Poona High School, whose services were lent by the Director of Public Instruction. It was finally transferred to non-commissioned officers of the Native Infantry.

23. During the greater portion of the operations the fumigation divisions worked daily over the same local area as the search divisions. One or more fumigation parties accompanied each search division for the purpose of disinfecting any houses where cases might be found in the morning's search. The remaining parties of the fumigation divisions were employed on the disinfection of houses entered on the fumigation lists, and situated within the section of the city to be searched on the particular day. At the close of the operations, when the number of houses for disinfection was small, this arrangement was not strictly adhered to, and the fumigation parties were employed in whatever part of the city there was work for them to do.

24. It will be seen in the "Directions for Fumigators" that two alternative processes of disinfection were prescribed. In practice, however, it was found that most houses could not be made sufficiently air-tight to admit of the fumigation process, and flushing with perchloride of mercury was the method of disinfection commonly adopted.

25. Appendix 7 shows the number of houses disinfected on each day of the operations.

The total number disinfected was 1,918, of which no less than 1,189 were disinfected before the end of March. The number of houses for disinfection naturally fell off as the epidemic decreased, and it was therefore possible to make frequent reductions in the numbers of the fumigation parties.



*The Limewashing Parties.*

26. Particulars of the constitution and duties of the limewashing parties will be found in the printed "Directions for limewashers" (Appendix 8). These directions were approved by the Plague Committee on March 24th and were published for general information.

27. For the first few days of the operations by the military a limewashing party consisted of three European and one Native soldier, and one cart containing limewash and implements was assigned for two parties. The constitution of the parties was as stated in the directions from March 22nd. In the first instance two limewashing divisions of ten parties each were employed. The number of divisions was however raised to three with effect from March 22nd. On April 1st, three parties were added to each division. On April 8th the strength of the limewashers was reduced from 3 divisions of 13 parties each to one division consisting of 15 parties.

28. The number of houses or portions of houses limewashed on each day of the operations is given in Appendix 9. The total number limewashed from March 15th to May 19th was 3,068.

29. The limewashing divisions usually worked in the portion of the town in which the search and fumigation divisions had worked on the previous day. Officers commanding limewashing divisions were furnished daily with lists of houses for limewashing. All houses which had been disinfected, either by the military fumigation divisions or by the Municipal staff, were included in these lists. Houses, which though not infected were found to be in a filthy state, were also included.

30. It was found at the beginning of the operations that rather too many articles were at times destroyed as rubbish. Orders were accordingly issued on March 26th to Officers commanding limewashing divisions to visit, if possible, all houses to be limewashed and to decide what should be destroyed in each. It was also laid down that when property of any value to the owners was destroyed by limewashing party, the Officer commanding the division should note the approximate cost of replacing what had been destroyed in order that compensation might afterwards be paid. In practice nothing was destroyed after the first fortnight of the operations except in the presence of an officer.

31. When a house was limewashed any property of value which it contained was usually handed over to the neighbours for safe custody. When this could not be arranged, which seldom happened, all valuables were sent to the Plague Committee's warehouse, where they were kept till claimed by the owners.

*The Segregators.*

32. The work of removing to the segregation camps the apparently healthy inmates of infected houses was performed by Native Infantry under the command of a British officer. A segregation party was present daily in the section of the city where the search divisions were working. The segregation of the inmates of houses where cases were found by the searchers was made in accordance with the instructions contained in the "Directions for searchers" (Appendix 2). A more laborious part of the duty of the segregators, however, was the segregation of the inmates of houses where plague cases had occurred which had come to light otherwise than through the agency of the search parties or where deaths had taken place which had not been certified by a Commissioned Medical Officer to be due to some cause other than plague. The Segregation Officer, Lieutenant Owen Lewis of the 14th Bombay Infantry, was furnished daily with a list of such houses.

33. At the commencement of the operations segregation ceased to be carried out in the morning at the time when the search was going on in the city. It was found, however, that to avoid segregation the inmates of infected houses commonly absented themselves from home during the ordinary working hours. It was therefore found necessary in the later stages of the operations to vary the hours of work for the segregators from day to day. The work of the Segregation Officer was by no means easy, and it was often a matter of much practical diffi-

culty to determine who should and who should not be segregated. Mistakes were made at times, but I am satisfied that segregation was on the whole conducted with discretion and tact.

#### IV.—PLAGUE WORK PERFORMED BY MUNICIPAL AGENCY IN POONA CITY.

The subject of the plague first came before the general body of the Municipality at a meeting held on 30th September 1896 when a discussion took place on a question asked by one of the members. No resolution was passed on that occasion and no other business connected with the plague was brought before the Corporation till January 13th, 1897. Some action was, however, taken by the Municipal Executive in the meanwhile. On 30th September 1896 a medical man was employed at the Poona Railway Station conjointly by the Poona Suburban and City Municipalities to watch in-coming passengers from Bombay.

2. On 6th October 1896 the Managing Committee ordered that drains and gutters should be cleansed and flushed as a precautionary measure. These orders were carried out in the course of the month of October. On January 13th, 1897, the Municipality considered letters received from the Sanitary Commissioner and other officials on the subject of the plague, and resolved that the Managing Committee should, in consultation with the Sanitary Committee, make proposals for the approval of the general body regarding the measures to be adopted by the Municipality in the matter of the plague under Section 73 of Bombay Act VI of 1873. At the same meeting an Assistant to the Health Officer was appointed, and the Municipality agreed to bear one-third of the cost of the plague sheds which had been erected at the Sassoon Hospital. On January 18th Municipality agreed to bear one-third of the cost of establishment and medicines for the Plague Hospital. The construction of a segregation camp on the Shankarshet Road was commenced on 1st February 1897.

3. Regulations under Section 73 of Bombay Act VI of 1873 were finally sanctioned for the City of Poona by the Commissioner, C. D., in his memorandum No. P.-252, dated 29th January 1897. A copy of these regulations is attached (Appendix 10). On January 25th Doctor Dhamdhare, the Assistant Health Officer, was put on pure plague work, and detailed instructions were given to him for dealing with plague cases and affected dwellings. Practically no attempt was made by him to remove the sick for the reason that all cases were systematically concealed and information of a plague case was only received after death. When such cases were found the infected houses were fumigated, cleared of dirt and rubbish and then whitewashed. Disinfectants were used over the dirty parts of houses, and wells belonging to the houses were treated with permanganate of potash. The clothes of the sick were burnt. All public wells in the city were treated by the Municipal staff in the same way as those belonging to infected houses. About 1,600 houses were whitewashed under the orders of the Municipality between 2nd February and 25th March.

4. Surgeon-Captain Lloyd Jones arrived in Poona on February 8th and undertook the supervision of the operations against the plague, which so far had been entirely carried out by Native agency. When he arrived the death rate of the city was more than twice the normal, and the epidemic was daily increasing and becoming more virulent. There was intense opposition to anti-plague measures and no cases were voluntarily disclosed. Whenever a case was heard of, the house was visited and the sick person removed (generally by force) to hospital. On two occasions the opposition went so far that the persons removing the patients were mobbed and the cases rescued. The segregation of the apparently healthy inmates of infected houses was tried but failed almost entirely owing to the intense opposition of the people and the absence of a suitable agency to enforce it. Owing to other calls upon him the District Superintendent of Police was only able to supply 12 policemen for regular plague duty—a number wholly insufficient for the enforcement of measures which were distasteful to the general public.

5. Shortly after his arrival Surgeon-Captain Lloyd Jones commenced a house-to-house visitation with a view to the improvement of the sanitary condition of dwelling houses. In the houses visited ventilation openings were made, and the drains were attended to according to the requirements of each case. Where necessary, the houses themselves were limewashed. Over 1,000 houses



were examined by Surgeon-Captain Lloyd Jones personally in Raviwár Peth. He found in the course of his inspections that the Municipal staff was very inadequate; cess pools were not emptied for days in some cases, drains were clogged and almost all side lanes formed a combined dust-bin and public latrine. There was little supervision over the Municipal subordinates.

6. During January and February the health establishment was considerably increased. On February 16th Doctor Benjamin Solomon was engaged as an additional Assistant Health Officer, while shortly afterwards Doctor Bhau Vithoji was engaged in a similar capacity. Four European Inspectors were taken on, while the numbers of Native Inspectors, mukádam and sweepers were largely increased.

7. On February 25th the city was under my orders divided into two sections for purposes of plague work, one section being placed under Surgeon-Captain Lloyd Jones and the other under Surgeon-Captain Beveridge. This arrangement continued till March 11th, when other duties being assigned to Surgeon-Captain Beveridge, Surgeon-Captain Lloyd Jones resumed charge of the Municipal plague operations throughout the city. The work of searching for plague cases was then divided between the three Assistant Health Officers, each of whom had certain peths assigned to him. To the European Inspectors were assigned the duties of fumigating and disinfecting houses, where cases of plague were discovered by Municipal establishments, and of opening up houses that were badly lighted or ventilated. All houses in the following peths—Somwár, Mangalwár, Rástia, Kasba, Ganesh, Bhawáni, Ganj, Vetál, Sukrawár and Budhwár—have been examined by the Inspectors and opened up where necessary. Details of the work done by the Assistant Health Officers and Inspectors are shown in Appendices 11 and 12.

8. It will be gathered from Appendix 11 that the Assistant Health Officers were far more successful in their search for plague cases from 13th March, when the military house-to-house inspection commenced, than they had been previously. The reason of this is that when search by the military commenced, many persons voluntarily gave information of plague cases to the Municipal Authorities. Surgeon-Captain Lloyd Jones reports that the Assistant Health Officers and Inspectors have worked excellently and specially mentioned Doctors Solomon and Dhamdhere, Inspectors Curtis and Ryan and Mukádam Kalu.

9. I am of opinion that the work carried out under Surgeon-Captain Lloyd Jones' supervision had been very satisfactorily performed, and that this result is chiefly due to the zeal and conscientiousness he has himself shown in the discharge of his duties. The value of such work as the removal of 608 cases to the plague hospitals is obvious, while the improvement that has been effected in the ventilation of dwelling houses should have a lasting effect upon the health of the city.

10. Of the Municipal Commissioners the majority have rendered little service in connection with the plague operations. On February 16th, 1897, the Municipality resolved that the wards of the city should be distributed among the members who should form Committees to induce the public to send patients to hospital. This resolution had, however, no practical result. On March 16th, 1897, I, as Chairman of the Plague Committee, wrote to the President of the Municipality asking him to request the members to enrol ward visitors in the wards to which they belonged. The duties proposed for the ward visitors were—

(a) to obtain information of the occurrence of plague cases in their wards;

(b) to induce the friends of plague patients to remove them voluntarily to hospital; and

(c) to accompany military search parties on days when the parties worked in the wards to which the visitors belonged.

Unfortunately nothing came of this suggestion.

The names of those gentlemen who rendered assistance to the military search parties are mentioned elsewhere. I may note here that Sardár Khán

Bahádur Dorabji Padamji, President of the Municipality, has rendered good service to the public by administering a fund for the relief of sufferers from the plague.

#### V.—CONSERVANCY IN POONA CITY.

The Plague Committee have attached great importance to bringing the general sanitation of Poona City up to as high a level as circumstances permitted. The charge of the conservancy of the city was entrusted to Surgeon-Major Barry on February 27th, and it has remained with him ever since.

2. I am not able to write from personal experience of the sanitary condition of the city before the epidemic commenced. At the end of February owing to the entertainment of special establishments for sanitary work it was probably somewhat better than usual. The streets and some of the lanes and open spaces left little to be desired in point of cleanliness. In other respects, the conservancy of Poona was about up to the average standard of Mofussil towns in Western India, and consequently far below what is required by public opinion in Western Europe.

3. The health of the city necessarily was and is largely dependent on the arrangements for the removal of sewage. In the western portion of the city a system of sewers was constructed in the time of the Peshwas. These sewers have not been superseded by any later improvements and are still in use. No plan of the sewerage system is in existence, and the course of many of the sewers is unknown. A large proportion of the branch sewers have been wholly or partially blocked for years. The eastern portion of the city is unsewered, and there a system of cess-pools prevails. Surface-water is carried off by gutters which are usually covered with stone slabs. In parts of the city where there are no sewers nightsoil is removed from the privies by Bhangis who convey it in baskets to iron barrel carts which are kept at fixed stations in the city. It is carried in the carts to the nightsoil depôt outside the city.

4. I do not propose to deal at length with the shortcomings of the Poona Municipality in the matter of conservancy which were brought to light in the course of our operations, but I will enumerate the principal ones :—

The post of Health Officer was held by a young Bráhmín, L. M. & S., who was quite unfit for the place. The nightsoil carts were for the most part in imperfect repair. The stands where the nightsoil carts were kept were in an offensive state. The number of carts employed for the removal of sullage water was insufficient.

Dust-bins were not emptied regularly, and rubbish was allowed to accumulate in open spaces.

The channels or *moris* leading from the privies to the sewers were usually more or less blocked. The sewers into which the *moris* led were many of them blocked.

The Bhangis as a class were out of hand, and neglected their duties owing to want of proper supervision. The low-caste quarters of the city were neglected.

There was insufficient supervision over the conservancy arrangements generally.

5. To improve the sanitary condition of the city the first essential was to provide an efficient supervising establishment. Accordingly 18 British privates with two non-commissioned officers were appointed Conservancy Inspectors. A respectable English-knowing Native was attached to each of them as Sub-Inspector. During a portion of the operations a British Officer was detailed to supervise them, subject to the orders of Surgeon-Major Barry. The incompetent Health Officer was discharged by the Plague Committee and Mr. George Guider, who has since done good work, was appointed in his place. As it was essential that the sanitary condition of the city should be improved without delay, considerable additions were made to all branches of the subordinate conservancy establishment.



6. Special attention was paid by Surgeon-Major Barry to the systematic flushing of privies, *moris* and main drains. The disinfectants used for this purpose were creosotive, and subsequently corrosive sublimate.

The work of the Bhangis was carefully supervised, and the regular removal of nightsoil from privies was enforced. Nightsoil carts were repaired as far as possible and efforts made to obtain new ones. None ready-made could however be obtained on this side of India. Open spaces and lanes as well as the main streets were systematically cleared of rubbish.

Steps were taken by the issue of notices under the Municipal Act and otherwise to get insanitary privies put into a sanitary condition.

7. The city having been brought into a fair state of cleanliness the special subordinate conservancy establishments were ordered to be discharged from May 16th. Twelve British non-commissioned officers and privates with an equal number of English-knowing special sub-inspectors were however retained.

8. I am of opinion that the measures taken had the effect of materially improving the sanitary state of the city of Poona, and that great credit for the results obtained is due to Surgeon-Major Barry. There can be little doubt that the city is now cleaner than it ever has been within the memory of living man, and this is probably one of the causes that has kept down the general mortality.

9. Some particulars of the conservancy work done during the time the military inspectors were employed will be found in Appendix 13.

#### VI.—WORK IN POONA CANTONMENT.

The importance of taking stringent measures to check the spread of the plague was recognized by the Poona Cantonment authorities long before indigenous cases of the disease had appeared in the cantonment. The matter was referred to higher authority and finally the General Officer of the Bombay Command, with the sanction of the Government of India, prescribed for Poona Cantonment the temporary regulations contained in Appendix 14. These regulations were published by the Cantonment Magistrate on 20th January 1897. Prior to this, however, special attention was paid to the whitewashing of houses and the cleansing and disinfection of sewers and drains.

2. Towards the end of January the General Officer Commanding at the request of the Cantonment Magistrate placed Surgeon-Major Donnet on special duty in the cantonment to make a house-to-house visitation and to supervise sanitary arrangements. This officer was attacked with plague in the performance of his duties, and going on leave was succeeded by Surgeon-Captain Thacker, who has since been in medical charge of plague operations in the cantonment.

3. When the operations in Poona Cantonment were placed under the Plague Committee's control that Committee, as already stated in Section II of this report, delegated certain of its powers to Colonel Newnham Smith, Cantonment Magistrate. Thereafter all plague measures of a routine nature were carried out under his orders, subject, however, to the Committee's general control. The removal of the plague-stricken to hospital and the segregation of the inmates of infected houses was systematically enforced.

4. Military search parties were employed in the cantonment from March 18th. In the first instance two parties of three British soldiers, each under a non-commissioned officer, were sent there. On March 22nd the number of search parties was increased to six. On April 9th, as the disease appeared to be increasing in the cantonment, two divisions of 10 parties each were sent there. Each party consisted of one British and two Native soldiers, and the search divisions were commanded by British Officers as in the city. On May 13th one search division was abolished, and the search was stopped altogether on May 19th. The military search was conducted in the cantonment on substantially the same lines as in the city except that in addition to searching for plague cases the troops were employed on the destruction of rubbish found in the houses searched. Only some 20 cases of plague were actually discovered by the search parties, but search had the effect of causing prompt intimation of

the occurrence of cases to be given to the authorities. When two divisions were working in the cantonment it was found possible to search daily all the bazaars and a large proportion of the bungalow compounds.

5. The troops employed in the cantonment are reported by Colonel Newnham-Smith to have performed their duties with tact, efficiency and zeal. They were accompanied on their rounds by women searchers and Native gentlemen, most of whom were retired Native Officers. Of the women searchers, Misses F. and G. Smith of the Salvation Army are reported to have been "most useful and indefatigable." The following are the Native gentlemen who did good work :—

Risáldár Pirkhan.  
 „ Budrudin Khan.  
 Subhedár Devising.  
 „ Cornelius Ramsey.  
 „ Syed Boodhan.  
 „ Syed Ebrahim.  
 „ Hoobdar Khan.  
 „ Shaikh Hoosman.  
 „ Shaikh Mahomed Husain.  
 „ Shaikh Ahmed.  
 „ Ramdoo.  
 Subhedár-Major Bhador Shaik Muccadum.  
 Subhedár Shaikh Hyatkhan.  
 Mr. Gangaram Bhau Mhaske.  
 Mr. Cursetji Byramji Kotwal.

Out of these, Risaldár Pirkhan and Subhedár Cornelius Ramsey, who continued to work with the search parties after cases of plague had occurred in their own families, and Mr. Gangaram Bhau Mhaske have been specially commended by Colonel Newnham-Smith.

6. The disinfection and whitewashing of infected houses was carried on by labourers who worked under the supervision of British non-commissioned officers. It was carried out on the same lines as in the city, except that the removal of a portion of the roof to admit air and sunlight formed part of the process of disinfection. The removal to the segregation camp of the apparently healthy inmates of infected houses was effected by civil agency.

7. At the suggestion of the Cantonment Magistrate the General Officer Commanding appointed a Committee consisting of the Executive Engineer, Military Works Department, Surgeon-Captain Thacker and Mr. John Graham, to visit plague-infected houses, report on their structural defects such as want of ventilation, &c., and make recommendations regarding them. It is hoped that the work of this Committee will result in an improvement in the health of the cantonment.

8. Two old Mahomedan burial grounds in SÁCHÁPIR Street known as SÁCHÁPIR Wallee's and Kassumali's were closed under the orders of the Plague Committee.

9. Particular attention was paid to the whitewashing of houses throughout the cantonment. Mrs. Duncan was kind enough to raise a subscription for the relief of sufferers from the plague. The money raised was distributed through the cantonment authorities to poor persons who had suffered through the destruction of their property or otherwise.

10. Plague operations were carried on in the cantonment with a success and with an absence of friction that reflect the highest credit on Colonel Newnham-Smith. He was ably seconded by Surgeon-Captain Thacker who, in addition to diagnosing suspected cases of plague that occurred in the cantonment and performing the duties already referred to, was employed on the medical examination of corpses and the supervision of the cantonment segregation camp



and the Pársi hospital and segregation camp. Colonel Newnham-Smith has also spoken very highly of the assistance he received from Mr. M. H. Dastur, his executive officer, who is reported to have been instrumental in detecting a large number of cases of plague. Sergeant Gordon, Superintendent of Conservancy, and Mr. Cowasji Barjorji, bullock contractor, have also been specially commended for their services.

## VII.—WORK IN POONA SUBURBAN LIMITS.

The first step taken to prevent the ingress of the plague into Poona was the institution of a medical inspection of passengers at Poona Railway Station, which is situated within the limits of the Suburban Municipality. This matter is dealt with in another section of the report.

2. Towards the commencement of December the Suburban Municipality undertook the cremation of the bodies of people dying of plague, where caste customs permitted such disposal of the dead. An establishment was engaged for the cremation work and a cart was provided for removing dead bodies. For the villages of Yerrowda, New Kirkee and Sangamwádi, which are within suburban limits, a shed was erected about half a mile to the east of Yerrowda for segregating the inmates of houses where plague cases occurred.

3. On an increase occurring in the number of imported cases of plague from Bombay the Municipality engaged extra conservancy establishments to enforce and maintain cleanliness within the Municipal district. All house-owners were required by notice to limewash their bungalows and out-houses. The servants' rooms and out-houses thus limewashed numbered 3,867. Printed notices were issued to house-owners and lodging and eating house-keepers not to take in persons arriving from Bombay and other infected areas. Printed notices of precautions to be taken against the spread of the plague and measures to be adopted on a case occurring were freely published and circulated. On March 21st the services of a Native medical man who had previously been employed on passenger inspection duty at the station were retained for general work in connection with enquiries into causes of death and for taking part in house-to-house visitation.

4. As already stated in Section II of this report the Plague Committee delegated certain of its powers to Mr. A. H. Plunkett, C.I.E., Chairman of the Managing Committee of the Poona Suburban Municipality, who, with the Committee's concurrence, practically had the entire management of plague arrangements within suburban limits.

5. Owing to the smallness of the number of the cases that occurred within suburban limits, other than those found in the Railway Station and on the roads, the amount of disinfection that had to be carried out was not large. The roofs of 26 houses and rooms, in or near which cases of plague had occurred, were opened and their floors dug up. Forty-six houses and rooms were vacated and 31 were condemned as unfit for human habitation pending certain alterations. Thirty windows were made in 11 houses to admit of more light and air. Only 24 persons were removed to segregation camps.

6. House-to-house inspection with the assistance of British troops was commenced on the 22nd March and continued till the 19th May. During that period the search was carried on for three days in each week. One non-commissioned officer and 9 privates were employed on the search. They were divided into four parties, each of which was accompanied by one or more Municipal Commissioners. The whole of the Municipal area was searched weekly, the work being carried on under the personal supervision of Mr. Plunkett. The instructions issued by Mr. Plunkett for the guidance of the search parties are given in Appendix 15. One medical man, one lady doctor and two Mahomedan women accompanied the search parties. No plague cases were found in the search by the military, but it doubtless operated to prevent the concealment of plague cases. Mr. Plunkett has brought to notice the excellent behaviour of the British troops employed in the search. The work that devolved on them was performed with due regard for the caste customs and religious usages of the people whose dwellings were inspected, and gave him entire satisfaction.

7. The following gentlemen, who are members of the Suburban Municipality, rendered useful assistance in the search :—

Ráo Sáheb Balkrishna Shayana.  
Mr. Abdulla Abdool Wahed.  
„ S. Webbe.  
„ Dadabhoy Sorabji.  
„ Pestonji Bomanji.  
„ Balwantrao Hari Chiplunkar.  
„ Bezonji Nasarvanji.  
„ Dorabji Dadabhoy Butti.

Mr. Plunkett has also called attention to the good work done by the Municipal Secretary, Mr. Nowroji Mancherji Patil.

8. I consider that the operations against the plague within suburban limits have been conducted smoothly and satisfactorily and reflect the highest credit on Mr. Plunkett.

#### VIII.—WORK IN VILLAGES ROUND POONA.

Owing to the fact that many sick persons were known to have been removed from Poona to places outside during the prevalence of the epidemic in Poona City it was thought advisable that before the work of house-to-house inspection in the city was stopped the surrounding villages should be searched in order to ascertain how far they were affected. To enable this to be done Government were pleased to empower the Plague Committee, by Government Resolution No.  $\frac{2190}{1629P}$  of 24th April 1897, to exercise the powers conferred on them by Nos. 5, 6 and 9 of the rules prescribed in Government Resolution No.  $\frac{1272}{765P}$  of 9th March 1897, throughout the Haveli Táluka of the Poona District.

2. Two search divisions, each consisting of 10 parties composed of one British and two Native soldiers, were formed for this search. The divisions were commanded by British Officers and were accompanied by Surgeon-Lieutenant Dove. The search commenced on April 28th and continued till May 4th, during which period 31 villages and hamlets were visited. No cases of plague were discovered, and the search was accordingly discontinued after the latter date. The villages searched were found to be remarkably clean and the attitude of the villagers was invariably friendly.

#### IX.—HOSPITALS.

The number of hospitals at which plague patients were treated was five. The names of the hospitals with the date of admission of the first plague case to each are given below :—

Name of Hospital,		Date of first admission,
Sassoon General Hospital	...	... 8th October 1896.
General Plague Hospital	...	... 5th February 1897.
Mahomedan Plague Hospital	...	... 8th March 1897.
Hindu „ „	...	... 15th March 1897.
Pársi „ „	...	... 13th May 1897.

None of these hospitals had been finally closed up to the end of May 1897. Of the five, the first two are under official management, while the remainder are privately managed, subject however to the supervision of the Plague Committee.

#### *Sassoon General Hospital.*

2. This is the General Hospital for the whole of Poona and is under the management of the Civil Surgeon. It was the only hospital to which persons suffering from plague could be sent when the disease first appeared in Poona. The first case was admitted on 8th October 1896 and was treated in the Contagious Ward.



3. As other cases began to come in, a letter was sent to the Executive Engineer on October 22nd, asking for the erection of a special shed for six patients in the hospital compound. A grass shed was accordingly put up in the hospital compound, and was in use from 29th October to the beginning of December.

4. The accommodation so provided proved to be insufficient and, therefore, a Committee composed of the City Magistrate, the Sanitary Commissioner and the Executive Engineer met on December 8th to select a new site for plague sheds, as the hospital compound was being over-crowded. The Committee selected a site on the north side of the hospital on land belonging to the G. I. P. Railway Company. At the same time they recommended that sheds to hold 20 beds should be erected at once and a special extra establishment of one Assistant Surgeon and one Hospital Assistant besides menials engaged. New sheds for plague patients were accordingly erected on the site selected along with a shed for the Hospital Assistant's quarters, a dead house and a privy, and the shed which had been in use in the hospital compound was transferred to the new site.

5. In consequence of the objection of the Railway authorities to the treatment of plague cases at this site, the Poona Cantonment and the City and Suburban Municipalities finally agreed to build a plague hospital near the Sangam between Valentine Lodge and the Silk and Cotton Mills. When this hospital was opened on February 5th all the plague patients (18 in number) were transferred to it. The total number of patients treated in the Sassoon General Hospital and the plague sheds connected with it up to that date was 179, of whom 114 died, 10 absconded, 37 were discharged cured, and 18 were transferred.

6. After the opening of the General Plague Hospital at the Sangam all cases received at the Sassoon Hospital which showed definite symptoms of plague were transferred there at once, but doubtful cases which were received from the Railway Station and the Cantonment were kept for observation. On April 28th the Plague Committee ordered that all cases for observation should be sent to the General Plague Hospital in the first instance. Since then a few cases of plague have been found among patients brought to the Sassoon Hospital, and they have been promptly transferred.

7. The total number of cases of plague admitted to the Sassoon Hospital up to 20th May 1897 (including observation cases) was 238. Of these, 34 were found not to be plague cases and were discharged, while 204 persons were found to be suffering from plague; of these 40 were discharged cured, 117 died, and 47 were otherwise disposed of.

8. The Sassoon General Hospital has been the appointed plague hospital for Europeans throughout the epidemic. Two European patients have been treated there, Surgeon-Major J. C. Donnet, A.M.S., and Mr. Kennedy, Sub-Editor of the *Deccan Herald*. Both were discharged cured.

9. Appendix 16 is a daily statement showing the result of the treatment of true and suspected cases of plague. Appendix 17 gives particulars of the men, women and children treated at the hospital. The small proportion of female patients admitted is noticeable.

10. The Civil Surgeon, Brigade-Surgeon Lieutenant-Colonel McConaghy, has cordially co-operated with the Plague Committee, and I have much pleasure in acknowledging the help that we have received from him.

#### *General Plague Hospital.*

11. This hospital, which is situated near the Sangam, was built at the joint cost of the City and Suburban Municipalities and the Poona Cantonment. It was opened on 5th February 1897, Mr. B. B. Dárábshett, a local medical practitioner, being placed in charge of it. Surgeon-Major Barry was placed by me in supervisory charge of the hospital on 27th February 1897.

12. Full information as to the arrangements at the hospital will be gathered from the accompanying copy of his report No. 1—Y (Appendix 18). Further information relating to the hospital will be obtained from the Appendices noted below :—

Appendix 19.—Drawing of the hospital and its surroundings.

Appendix 20.—Daily statement of cases.

Appendix 21.—Statement of men, women and children treated at the hospital.

Appendix 22.—Statement of cases with groups of statistics.

Appendix 23.—Statement of superior establishment.

Appendix 24.—Statement of nurses.

Appendix 25.—Statement of establishment employed when the hospital was fullest.

Appendix 26.—Copy of the Plague Committee's rules relating to the hospital.

13. A plan of the hospital drawn to scale has already been submitted to Government with my No. 1063 of the 8th May 1897. One of the first duties of the Plague Committee was to arrange for the extension of the General Plague Hospital to accommodate the increased numbers of patients that were expected to be brought there. Again, during the month of May, a portion of the hospital had to be adapted to monsoon requirements, and monsoon accommodation for 75 patients was ordered to be provided. Works in connection with this hospital were carried out by the Public Works Department. It may be mentioned that the hospital with its burial grounds at one time occupied an area of 15 acres and 2 gunthas.

14. Surgeon-Major Barry's report on the hospital is clear, and there is little in it that requires comment from me. I am not sure, however, that he is correct in saying that the labours of the European nurses were largely wasted. Of the value of their work from a medical man's point of view I am of course unable to express an opinion. From what I have seen with my own eyes I consider, however, that the attentions of the nurses were much appreciated by the patients.

15. The tabular statements relating to the hospital for the most part do not appear to call for remarks from me. I must however draw attention to Appendix 20 as showing the remarkable increase that took place in the number of admissions from March 14th, *i.e.*, from the time the military search parties commenced work. There is a striking contrast in the number of admissions before and after that date, though there is every reason to think that there was more plague in Poona at the beginning than at the end of March. Nothing could show more clearly the value of the military search parties than this record of admissions to hospital. In explanation of the fact that the marked increase in the number of admissions occurred on the 14th, while the search by the military commenced on the 13th, I may mention that the hospital returns were made up to 6 A.M. daily and the returns for the 14th would include all persons admitted after 6 A.M. on the previous day.

16. I have much pleasure in acknowledging the valuable work done by Surgeon-Major Barry as Supervisional Medical Officer. The comfort of the patients was looked to in every way, a high standard of sanitation was maintained, and the discipline enforced upon the large staff of hospital subordinates was excellent. Surgeon-Major Barry has been ably seconded by Mr. Plunkett, by Doctor Dárabshett, the Medical Officer in charge, and by Miss McIntosh, who has been in charge of the nursing arrangements since April 18th.

#### *Mahomedan Plague Hospital.*

17. This hospital was erected with my sanction by the Mahomedans of Poona, the funds for constructing and maintaining it being raised by voluntary subscription. It was managed by a Committee, of which the leading spirit was Mr. Jaffer Jussuff, the well-known Commission Agent. The management was subject to the control of the Plague Committee. The Committee of management admitted all Mahomedans to the hospital free of charge and provided them with free board and lodging while they remained inmates.



18. The hospital is situated on the north side of the Shankarshet Road. It was composed during the hot weather of chappar huts divided into compartments, which were intended to hold one patient each. When the hospital, which was increased from time to time, reached its greatest dimensions, there was accommodation for about 50 patients, a number which was exceeded for the greater part of the month of April. At this time two patients often occupied one compartment. The compartments were covered matting and mattresses were supplied for the use of the patients. Cots were purchased for the patients, who, however, did not take kindly to them. There was a plentiful water-supply.

19. Surgeon-Captain Beveridge was in supervisional medical charge of the hospital up to March 30th, when he was succeeded by Surgeon-Lieutenant Kiddle. The administrative medical charge of the hospital was held by a hakim named Ainudin and S. A. Rayman, a pensioned hospital assistant. The treatment of the patients was entirely in the hands of the hakim who used native remedies only. The patients had the option of being treated by the hospital assistant, but none availed themselves of it. The hospital assistant was responsible to the Plague Committee for keeping the hospital in a sanitary condition. The supervisional Medical Officer did not interfere with the treatment of patients, but no case was allowed to be discharged till he was satisfied that a cure had been effected. A sufficient staff of subordinates was maintained.

20. Plague patients were allowed to have one relative with them in hospital, but there was no regular nursing. A guard of Native Infantry was kept over the hospital to prevent the entry of unauthorized persons.

21. At the beginning of April, when the Mahomedan Hospital was full, it was found necessary to direct that cases among Mahomedans found in the search by the military should be sent to the General Plague Hospital. This order was withdrawn at the end of the month when the numbers in the Mahomedan Hospital had fallen.

22. Appendix 27 gives particulars of the number of patients in hospital on each day, while Appendix 28 shows the general results of the treatment up to May 20th. From the latter statement it appears that out of 309 patients found to be suffering from plague 122 were discharged cured, 179 died and 8 remained under treatment. Of the persons shown as cured, 48 were discharged within 10 days of admission, and Surgeon-Lieutenant Kiddle considers that for that reason they could not have been true cases of plague. If he is correct in his surmise, the treatment was less successful than the figures in Appendix 28 indicate.

23. In the points of cleanliness and smartness the Mahomedan Hospital has compared unfavourably both with the General Plague Hospital and the Hindu Hospital. It has, however, been of immense value owing to the confidence it has enjoyed with practically the whole of the Mahomedan community. The majority of the patients admitted belonged to the poorer classes of Mahomedans. No one would have been surprised if this class of people had obstinately opposed the removal of their sick to hospital. So far, however, was this from being the case that a large proportion of the patients were brought in by their relations of their own accord. When the hospital was in danger of being closed for want of funds, the Plague Committee felt themselves justified in making a grant-in-aid towards its maintenance. The success of the hospital has been chiefly due to the efforts of Mr. Jaffar Jussuff who, besides collecting the funds necessary to finance it, has paid constant attention to the details of the management, and has adopted, to the best of his ability, all suggestions made to him by the Plague Committee. I have no hesitation in saying that there is no Native gentleman in Poona who has rendered services of equal value to Government and the public generally during the plague epidemic. Hakim Ainudin appears to have worked conscientiously and to have been trusted by his patients.

#### *Hindu Plague Hospital.*

24. The Hindu Plague Hospital was erected from the voluntary contributions with the sanction of the Plague Committee. It was situated to the

west of Poona City beyond the Lakdi Pul. It consisted of rows of chappar huts divided into compartments, each of which was intended for the accommodation of one patient. The hospital was managed by a Committee of Bráhmíns subject to the control of the Plague Committee.

25. The hospital was open to all Hindus except members of the low castes. Persons admitted were usually required to pay an admission fee of Rs. 10 and Re. 1 per diem for maintenance charges. Of 157 patients admitted 98 were Bráhmíns and 59 belonged to other castes. As in the other plague hospitals patients were allowed to be attended by one relative who lived on the premises.

26. The hospital was under the supervisional charge of Surgeon-Major Barry and patients were not allowed to be discharged without his authority. Mr. V. V. Bhagwat, L.M. & S., the visiting medical officer, directed the treatment of the patients. The chief part of the medical work was, however, done by two medical students who resided on the spot and took the place of hospital assistants.

27. Appendix 29 is a daily statement showing the result of treatment at the hospital. A summary of the results of the treatment will be found in Appendix 30. Further statistical information relating to the plague cases admitted is given in Appendix 31.

28. The sheds provided for the patients were comfortable, and the hospital and its surroundings were for the most part kept in a good sanitary condition. That the hospital was appreciated by considerable section of the Hindu population appears from the numbers that attended it. Surgeon-Major Barry's report on the management of the hospital is, however, generally unfavourable. The proportion of deaths to recoveries among true plague cases was higher not only than at the Sassoon and General Plague Hospitals, but also than at the Mahomedan Hospital, where treatment on European methods was not in vogue.

#### *Pársi Plague Hospital.*

29. The Pársi Plague Hospital is situated on the side of the Old Sátára Road beyond the Rifle Range. It was erected by the Pársi community at their own expense. The hospital is a substantial structure, rectangular in shape, roofed with corrugated iron and thatched. There are six commodious and well ventilated wards for plague patients with a bath-room attached to each. The wards are equipped in every essential particular. At right angles are situated the nurse's quarters, Hospital Assistant's quarters, dispensary, observation ward, &c., all of which are thoroughly furnished. Suitable arrangements were made for medical attendance and nursing. The hospital was under the supervisional charge of Surgeon-Captain Thacker, A.M.S.

30. Up to May 20th only one patient was admitted to the hospital. The solitary case was that of an old man who was admitted suffering from plague on May 13th and died on May 15th.

31. The hospital is a model one and reflects the highest credit on the Parsi community. That it has remained for the most part empty they would doubtless consider a matter of congratulation.

#### X.—SEGREGATION CAMPS.

The segregation camps were designed for the reception of apparently uninfected persons who had been exposed to plague infection. Removal to them was enforced under the powers vested in the Plague Committee by No. 6 of the Rules published with Government Notification No. 1272—765-P. of 9th March 1897. The powers of the Committee under that rule were subsequently extended by Government Resolution No. 1810—1264-P. of the 2nd April 1897. Segregated persons were liable to detention for a period not exceeding 10 days.

2. The object of segregating the apparently healthy inmates of plague infected buildings was two-fold. First and principally to prevent those of



them in whom plague was in a state of incubation from developing the disease in private houses and becoming fresh plague centres; secondly, to insure the non-occupation of plague-infected buildings till the buildings had been thoroughly disinfected. Ten days was fixed as the maximum period of detention, as that was believed to be the longest term for which the malady commonly remained in a state of incubation in a human being.

3. The following segregation camps have been in use under the orders of the Plague Committee:—

The General Segregation Camp.

The Mahomedan Segregation Camp.

The Cantonment Segregation Camp.

The Pársi Segregation Camp.

The first two camps were situated near the Shankarshet Road. The two last were situated by the side of the Old Sátára Road beyond the Rifle Range.

#### *The General Segregation Camp.*

4. The construction of this camp was commenced by the Poona City Municipality on February 1st. In the first instance 8 blocks of huts containing 32 rooms were erected. On my arrival here I issued instructions for largely increasing the size of the camp. It was constantly growing till finally in the month of April it contained 122 rooms. The camp consisted of substantial chappar huts with made floors. At the commencement blocks containing four or rooms were constructed. Later on, however, blocks were built with only two rooms each, the object of the change being to diminish both the loss that would be caused in the event of an outbreak of fire in any block, and the house space to be disinfected in the event of the occurrence of a case of plague. The size of the majority of the rooms was 12 by 10 feet. A plan of the General Segregation Camp accompanies (Appendix 32).

5. Fifteen cook-rooms of corrugated iron were provided for the use of the inhabitants of the camp. There were 20 latrines, 12 for men and 8 for women.

6. The camp was abundantly supplied with water from a neighbouring draw well. A pump was fixed up at the well and an adjoining cistern was kept full of water for the use of the inmates. Bathing and washing platforms to which water was brought from the well by pipes were constructed within the limits of the camp. Rows of kerosine oil tins filled with water were placed alongside all the huts for use in case of fire, and a Municipal fire engine was kept on the premises.

7. The camp was lighted by standard lamps which stood in rows between the lines of huts.

8. When I arrived at Poona so much of the camp as was then in existence was open to any of the inmates of infected houses that chose to come there. There was then no agency to compel people to come to the camp, and hardly any came there of their own accord. After my arrival and before the employment of the military on plague duty, I endeavoured to attract the inhabitants of plague houses to the camp by offering one free meal a day to every one in camp, and at the same time allowing the inmates to return to the city in the day time to follow their ordinary avocations. Even this inducement failed to bring any considerable number of people to the camp, and I was forced to realize that a non-compulsory system of segregation was impracticable in Poona.

9. From March 13th, when the plague work of the military commenced, the segregation of the apparently healthy inmates of infected houses was systematically enforced. Appendix 33 is a daily statement showing how the inmates of the camp were disposed of from March 13th to May 20th. The following is a summary of that statement:—

Period.	Number of persons detained or admitted.	Have died.	Have been found free from plague and discharged.	Have been found suffering from plague.	Have been otherwise disposed of.
March 13th—31st ...	960	8	252	12	9
April 1st—15th ...	658	3	863	16	59
April 16th—30th ...	968	...	824	6	79
May 1st—20th ...	491	1	676	2	111
Total ...	3,077	12	2,615	36	258

Five persons were in the camp on the morning of March 13th, and there were 161 inmates on the evening of May 20th.

10. Of the 12 deaths that took place 9 were due to plague. The number of persons shown as found suffering from the plague is exclusive of the plague deaths that occurred in camp before the sufferers could be removed to hospital. The persons shown as otherwise disposed of are chiefly persons who for some reason have been allowed to leave the camp before the expiry of the 10 days' period of detention.

11. The following table shows the number of days after admission to camp that the cases of plague declared themselves. In this statement cases that ended fatally in camp are included :—

Number of Cases.			Day of Segregation on which they occurred.
1	...	...	1st day.
1	...	...	2nd "
1	...	...	3rd "
1	...	...	4th "
1	...	...	5th "
1	...	...	6th "
1	...	...	7th "
1	...	...	10th "
1	...	...	11th "

As regards the case that occurred after the 10th day, it may be explained that the patient's ill-health prevented his discharge when his 10 days of detention had elapsed.

12. The General Segregation Camp was in charge of Surgeon-Captain Beveridge who visited it and inspected all the inmates daily besides closely supervising the sanitary arrangements. His principal subordinates were the Superintendent, the Native Officer in command of the infantry guard, and the Hospital Assistant. Besides a Native Infantry guard a sufficient staff of clerks, water-carriers, cooks, bhangis, sweepers, lamp-lighters and coolies was maintained.

13. A copy of the rules in force is attached (Appendix 34). Though the rules contemplated the grant of allowances for rations to members of the labouring classes only, as a general rule, it was found to be a matter of much practical difficulty to determine who should and who should not receive them, and in practice they were allowed to nearly all the inmates of the camp. There were three Baniyas shops within the encampment, which was visited daily by milk and vegetable sellers. Some members of the Hindu community with the permission of the Plague Committee opened an eating-house in the encampment, where such persons as desired it could obtain food ready cooked on payment.

14. Surgeon-Captain Beveridge is of opinion that apart from plague the general health of the inmates of the camp was good, and that segregated persons as a rule improved in condition during the period of their detention,



*The Mahomedan Segregation Camp.*

15. This camp was built and equipped at the expense of the Mahomedan community and was under the same management as the Mahomedan Plague Hospital, from which it was only a short distance away. It consisted of rows of chappar huts, which could comfortably accommodate 100 persons. Sufficient latrines and cook-rooms were provided. The camp was under the supervision at first of Surgeon-Captain Beveridge and subsequently of Surgeon-Lieutenant Kiddle.

16. Appendix 35 is a daily statement showing how the persons admitted to the Mahomedan Segregation Camp were disposed of. Admissions took place from March 15th to April 16th and the camp was finally closed on April 22nd. The total number of inmates admitted was 302, of whom 255 were found free from plague and discharged, 2 were found to be suffering from plague, and 45 were otherwise disposed of. No deaths took place at this camp.

17. Two inhabitants of the camp, both women, were attacked with plague. One was admitted to the camp on March 20th and was attacked on March 22nd; the other was admitted on April 6th and was attacked on April 9th.

18. As at the General Segregation Camp the period of detention was 10 days. Inmates were inspected daily by the supervising Medical Officer. Some of the inmates were provided with food by the Mahomedan Committee of management, while others were kept supplied with food by their relations and friends.

*The Cantonment Segregation Camp.*

19. The Cantonment Segregation Camp consisted of three rows of 80 lbs. tents, eight tents in each row, and could comfortably accommodate from 100 to 120 persons. Behind these were situated bath-rooms, store-houses, &c., built of corrugated iron. Latrines of corrugated iron were also provided. As at the other camps the Native Infantry guard was accommodated in tents.

20. Appendix 36 is a daily statement showing how the persons admitted to the Cantonment Segregation Camp were disposed of. Inmates were first admitted on February 24th. Between that date and May 20th the admissions numbered 659. Of these 601 were found free from plague and were discharged, 6 were found to be suffering from plague, 26 were otherwise disposed of and 26 remained in camp on May 20th. No deaths occurred at this camp.

21. The following statement shows the dates of admission and attack in the case of the six persons who were found to be suffering from plague :—

Case number.	Date of admission to camp.			Date of attack.
1	9th March	...	...	9th March.
2	2nd April	...	...	3rd April.
3	5th April	...	...	5th April.
4	4th April	...	...	6th April.
5	6th April	...	...	7th April.
6	13th May	...	...	17th May.

It will be seen that no one was attacked later than four days after admission to camp. Persons found suffering from plague were despatched to the General Plague Hospital.

22. The usual period of detention at the Cantonment Segregation Camp was from 7 to 10 days, but in some instances inmates were discharged after a shorter term.

23. Water was brought to within 200 yards of the camp by means of pipes and was conveyed into the camp by bhistis. The supply was of a sound, potable character, and was ample in quantity.

24. All the inmates of the camp were supplied with rations. The daily ration consisted of 2 lbs. of rice or flour, 3 ozs. dāl, 2 ozs. ghi, 2 ozs. jagri,  $\frac{1}{8}$ th oz. salt, chillies and tamarind, besides fresh vegetables. For Goanese and Eurasians, mutton, bread and vegetables were supplied.

25. On arrival in camp each person had a good bath, and was provided with fresh clothes and bedding. All clothes and similar articles brought to the camp were thoroughly disinfected by steeping for 30 minutes in carbolic solution or corrosive sublimate solution and placed in the sun to dry for five or six hours.

26. The inmates of the camp were regularly inspected by the Medical Officer. New admissions were kept separate from the other inhabitants of the camp for the first three days of their detention.

27. When a case of plague occurred the tent which the patient had inhabited was struck and placed in the sun for three days. The ground was well soaked with carbolic solution and chloride of lime in solution was sprinkled about.

28. The latrines were kept under close supervision and were attended to twice daily, the evacuations being disinfected before removal.

29. Surgeon-Captain Thacker reports that the inmates of the camp declared themselves much pleased with the treatment they received and expresses an opinion that they improved in health and general appearance during their sojourn there.

30. The camp was under the management of Surgeon-Captain Thacker and was well administered in every particular.

#### *The Pársi Segregation Camp.*

31. The Pársi Segregation Camp, which was situated alongside the camp last described, consisted of four large tents capable of accommodating from 40 to 50 people. It was provided with bath-rooms, a cook-house, a store-house and latrines. All were thoroughly suitable for their respective purposes. The camp was under the same management as the Pársi Plague Hospital which was situated on the opposite side of the road and was under the supervision of Surgeon-Captain Thacker.

32. Appendix 37 shows how the inmates of the camp were disposed of. Between March 27th when the first admissions took place and May 20th, 20 persons were admitted, of whom 18 were found free from plague and discharged, and two remained in camp on May 20th. There were no deaths or plague attacks. The period of detention was 10 days.

### XI.—PLAGUE AND MORTALITY STATISTICS.

#### *Poona City.*

The population of Poona City according to the Census of 1891 is 118,790. The area of the city is 4.9 square miles and 24,242 persons per square mile represents the density of population. For statistical purposes the population according to the census of 1891 is throughout this report taken to be the population of Poona.

2. As a matter of fact, however, the population of Poona has fluctuated considerably between September 1896 and May 1897. Owing to the establishment of the plague in Bombay people from that city began to flock into Poona so far back as September 1896, and continued to do so till February 1897. On the other hand an exodus from Poona set in towards the end of January when the plague had taken root in the city. It continued throughout February and the early days of March. In the second week of March, when it was known in the city that the military were to be employed to suppress the plague, large numbers of people left Poona. From the middle of March to the middle of April the exodus continued on a diminished scale. Towards the end of April the tide turned, and during the first half of May there was a considerable influx of population. When the military operations ceased on May 19th the population of Poona was probably about what it was when they commenced on March 13th.



3. Estimates of the population at various stages of the epidemic are necessarily a matter of guess work, a very large proportion of the egress having been by road, statistics of which are not available. I believe, however, that the maximum population was attained in the middle of January when there were probably not less than 150,000 people in the city. In the middle of April, when the population had reached its lowest point, the number of inhabitants probably did not exceed 80,000.

4. The first registered case of plague in Poona City, an imported one, occurred on 19th December 1896. Having regard to the numbers of plague patients found at Poona Railway Station during the previous  $2\frac{1}{2}$  months, it is probable that cases occurred earlier, but if they did, they were not reported to the Municipality.

5. A statement of the daily plague attacks, plague deaths, and total mortality from December 1st, 1896, will be found in Appendix 38. The monthly mortality of the city during the period of the epidemic is contrasted with the mortality in previous years in Appendix 39. Appendix 40 shows how the various castes and races have been affected by the epidemic. The following statement, which is an abstract of Appendix 38, gives statistics of plague attacks, plague deaths and total mortality for the 1st to 10th, 11th to 20th and 21st to the last day of each month:—

Period.	PLAGUE ATTACKS.			Plague deaths.	Total mortality.	Annual death-rate per mille represented on Census Population by total mortality.
	Imported.	Local.	Total.			
December 1st—10th ...	...	...	...	...	59	18
December 11th—20th ...	1	...	1	...	72	22
December 21st—31st ...	1	2	3	4	139	38
January 1st—10th ...	7	5	12	10	90	27
January 11th—20th ...	3	18	21	20	166	51
January 21st—31st ...	8	60	68	65	241	67
February 1st—10th ...	5	64	69	66	256	78
February 11th—20th ...	...	51	51	42	329	101
February 21st—28th ...	2	81	83	64	424	163
March 1st—10th ...	1	245	246	202	615	189
March 11th—20th ...	...	399	399	241	517	159
March 21st—31st ...	...	453	453	313	524	146
April 1st—10th ...	...	337	337	218	328	100
April 11th—20th ...	1	155	156	132	206	63
April 21st—30th ...	2	88	90	66	109	33
May 1st—10th ..	...	29	29	22	59	18
May 11th—20th ...	1	20	21	16	53	16
Total ...	32	2,017	2,049	1,481	4,187	.....

6. From Appendix 39 it will be seen that the registered mortality was abnormally low in October and November 1896. It was slightly above the average in December, and largely so in January, February, March and April. In May it was again below the average.

7. There is little reason to doubt that owing to the exceptional dryness of the weather consequent on the early stoppage of the monsoon of 1896, the general health of Poona from October 1896 to May 1897 was, apart from the plague, exceptionally good. This fact being accepted, it will be evident from a perusal of Appendices 38 and 39 that the number of reported plague deaths does not wholly account for the largeness of the total mortality in the months of January, February, March, and a portion of April. The fact is that a large proportion of the plague deaths that have occurred in private houses have been falsely reported as due to other causes and registered accordingly by the Municipal authorities.

8. The total number of plague deaths registered up to May 20th has been 1,481. A more correct idea can, however, be obtained of the number

of plague deaths by deducting the average mortality from the actual mortality for each month and treating the balance as due to plague. The number of plague deaths reported after 20th April may be accepted as approximately correct. The following statement shows the plague mortality of Poona City as arrived at by this method :—

Month.				Average mortality of preceding five years.	Actual mortality in plague year.	Difference between Columns 2 and 3.
1				2	3	4
December	...	...	...	261	270	9
January	...	...	...	261	497	236
February	...	...	...	225	1,009	784
March	...	...	...	244	1,656	1,412
April 1st to 20th	...	...	...	178	534	356
Add—Reported plague deaths from April 21st to May 20th				...	...	104
Total estimated plague mortality				...	...	2,901

9. The estimate of the total plague mortality thus arrived at is probably too low rather than too high. In the first place it has to be remembered that the general health, apart from plague, was good throughout the epidemic. Another cause that operated to keep down mortality during the period the military search parties were employed was the removal of sick persons from the city into the surrounding villages. I believe that this practice did much to lower the general mortality of the city, and it certainly accounts to a great extent for the exceptional lowness of the mortality from causes other than plague during the period from 21st April to 20th May. Accepting 2,901 as the total plague mortality of the city, and I think the figure is well within the mark, we find that the plague claimed 24 per mille of the registered population as victims.

10. In tracing the progress of the epidemic it has to be firmly borne in mind that till the latter part of April our record of plague attacks and plague deaths was very incomplete. Evidence of its rise and fall must, therefore, be looked for in the variations in the total mortality, and in this connection we ask attention to the abstract of Appendix 38, which has already been given. From the last column of that abstract it will be seen that the recorded mortality rose steadily from the first period of December to the first period of March with only one interruption, and that there was a continuous decline in all subsequent periods. In connection with this it must be explained that before the plague operations came under European control the death registration was carried on very irregularly by the municipal staff. On the last day of each month a number of deaths were brought on to the register, which had been reported by the municipal subordinates and policemen, some of which had occurred weeks before. Further, deaths were not registered at all on days when the Municipal Office was closed, deaths which should have been registered on such days being brought to account subsequently. It is owing to these two causes combined that the registered mortality was lower in the first period of January than in the last period of December. I see no reason to believe that there was any real interruption in the increase in the mortality between the first period of December and the first period of March. Up to the middle of January that increase was assisted by a continuous increase in the population of the city. From the beginning of February it went on concurrently with a decrease in the population. The mortality from all causes reached its highest point on 10th March, when a fall set in.

11. It will be seen from the abstract that the total mortality in the second period of March was smaller than in the first period of that month by 98. This decrease is chiefly due to the fact that it got known in the city that



house-to-house inspection by the military would commence on 13th March. During the few days before that date, thousands of people including many sick left Poona, which naturally had its effect on the mortality within city limits. The increase in the number of removals to hospital which began, when the military search parties started work, cannot have had much effect on the mortality as early as 20th March. The small decrease in the mortality that occurred in the third period of March is, in our opinion, due to the plan of campaign beginning to take effect on the epidemic. After the end of March the decrease in the mortality was rapid, and by the end of April the plague was no longer of the dimensions of a severe outbreak. By 19th May, when the house-to-house inspection was brought to a close, the disease may be said to have become sporadic.

*Poona Suburban Municipality.*

12. The population within Poona Suburban Municipal limits according to the census of 1891 is 6,706, exclusive of passengers enumerated at the Railway Station. The area is 3.75 square miles, and 1,788 persons per square mile represents the density of population. A statement of the daily plague attacks, plague deaths and total mortality from 2nd October 1896 to 20th May 1897 will be found in Appendix 41. The monthly mortality during the period of the epidemic is contrasted with the mortality in previous years in Appendix 42. Particulars of the extent to which the various castes and nationalities were attacked is given in Appendix 43.

13. The following summary of Appendix 41 contains particulars of the plague and general mortality in each month of the epidemic:—

Month.				Plague attacks.			Plague deaths.	Total mortality.
				Imported.	Local.	Total.		
October	...	...	...	6	...	6	6	47
November	...	...	...	1	...	1	...	34
December	...	...	...	45	...	45	33	83
January	...	...	...	89	...	89	55	107
February	...	...	...	57	4	61	35	66
March	...	...	...	20	8	28	16	66
April	...	...	...	32	7	39	17	66
May 1st to 20th	...	...	...	5	1	6	2	34
Total				255	20	275	164	503

The first cases of plague occurred on 2nd October and were imported from Bombay. No local case occurred till 21st February, and the disease never took a firm hold of the Suburban Municipal area. The reasons of this probably were the absence of over-crowding and the comparatively good sanitary condition of the majority of the houses within Suburban limits. Mr. Plunkett noticed that the majority of indigenous cases occurred in damp areas and near irrigation channels.

14. The bulk of the imported cases were those of persons found at Poona Railway Station to be suffering from plague. It is worthy of note that up to the end of February all the imported cases, 198 in number, came from Bombay. From Appendix 42 it will be gathered that the death-rate in ordinary seasons is extremely high in proportion to the population. This is due to the fact that the Sassoon Hospital, which is the general hospital for the whole of Poona, is situated within Suburban limits. The abnormally high mortality that has prevailed since December 1896 is in great measure accounted for by the inclusion in the returns of imported plague cases which proved fatal. It is not believed that any considerable number of plague deaths have been registered as due to other causes in Suburban limits.

*Poona Cantonment.*

15. The population of Poona Cantonment, according to the Census of 1891, is 35,094. The area is 4.25 square miles and 8,257 persons per square mile represents the density of population. A statement of the daily plague attacks, plague deaths and total mortality from 1st December 1896 to 20th May 1897 will be found in Appendix 44. The monthly mortality during the period of the epidemic is contrasted with the mortality in the corresponding months of previous years in Appendix 45. Particulars of the extent to which the various castes and nationalities were attacked is given in Appendix 46. The following summary of Appendix 44 contains particulars of the plague and general mortality in each month of the epidemic:—

Month.	PLAGUE ATTACKS.			Plague deaths.	Total mortality.
	Imported.	Local.	Total.		
December ...	...	...	...	...	36
January ...	3	...	3	...	57
February ...	2	5	7	4	67
March ...	9	63	72	44	97
April ...	11	75	86	64	107
May 1st—20th ...	...	20	20	18	47
Total ...	25	163	188	130	411

16. In addition to the cases shown above one imported plague case occurred on November 12th, and proved fatal. Including this case the total recorded plague mortality within cantonment limits was 131. No local case of plague is known to have occurred before 9th February 1897, and it was only in the month of March and April, after the adjoining parts of Poona City had become badly affected, that the cantonment suffered at all severely from the epidemic. The greater part of the Poona Cantonment is occupied by military lines and bungalows where a filth disease like plague would not be expected to gain a footing. The bazar portions of the cantonment are, however, thickly populated, and it is there that the majority of the indigenous cases of plague occurred.

*Death Registration Arrangements.*

17. The registration of all deaths that occurred was a point to which the Plague Committee attached the utmost importance. The subject was one which had not received the attention it deserved in Poona City up to the time of the appointment of the Plague Committee, and the bye-law relating to the giving of information of deaths by the people had not been enforced by the Poona City Municipality. In practice information of the occurrence of deaths used to be collected by the road-sweepers who were paid a quarter of an anna for every death reported at the Municipal Office. The Ward Mukadams and Inspectors had orders to check the information so obtained, and Police Constables on duty in the city had orders to collect information about domestic occurrences to serve as a check on that collected by Municipal agency. During the five years 1891-92 to 1895-96 the registered mortality had been at the rate of 27 per mille on the census population of 1891, and it is likely that about one quarter of the deaths that occurred used to escape registration.

18. Nos. 17, 18 and 19 of the rules published in Government Notification No. <sup>1272</sup><sub>765P</sub> of 9th March 1897, gave the Plague Committee power to enforce more accurate registration of deaths than had hitherto taken place. From the time the military operations commenced, registration clerks were kept on duty from 6 A.M. to 10 P.M. daily within City Suburban and Cantonment limits to register deaths of which information was given under rule 17 and to grant certificates of registry. At the same time mukadams were posted at the principal burning and burial grounds with orders to collect death registry certificates from funeral



parties, and to hand over a member of the funeral party to the Police if no certificate was forthcoming. Instructions were given to all policemen on duty to examine the certificates of all funeral parties which passed them and to detain a member of the party when no certificate was forthcoming in order that inquiries might be made as to where the death had taken place. The arrangements made were duly notified to the public.

19. The startling decrease which took place in the mortality of Poona City during the month of April led the Committee to entertain a doubt whether deaths were not escaping registration. Accordingly, with a view of increasing the efficiency of the death registration arrangements, a British Officer was placed in charge of them from April 26th. The actual work of death registration was entrusted to Native officers, and the Mukadams stationed at the burial and burning grounds were replaced by men from the Native Infantry. Sowars were told off to inspect daily the smaller burial grounds where it was not worth while maintaining permanent posts. I am confident that since these changes have been made very few deaths have escaped registration, while the number that went unregistered before April 26th was probably inconsiderable. The arrangements made for verifying the addresses at which deaths occurred have been noticed in describing the work of the fumigation parties.

20. In Suburban and Cantonment limits, where the death-rate never reached the height it did in the city, arrangements for the medical examination of corpses of persons who died in places other than hospital were made at an early stage of the operations. This had the effect of keeping down the number of houses which had to be disinfected and their inmates segregated, since when the examination showed that death was not due to plague disinfection and segregation were inapplicable.

21. In the city, owing to the calls upon the time of the Medical Officers employed, a system of medical examination of corpses was not introduced till May 19th, when the work of the search parties stopped. Since that date it has been performed by Surgeon-Captain Beveridge, and has had the effect of saving the public from much inconvenience. A copy of the notification which was issued regarding the medical inspection of corpses is given in Appendix 47.

22. By this system of inspection of dead bodies by a medical man, combined with efficient death registration arrangements, it is improbable that any considerable number of deaths from plague can escape the notice of the authorities, and the enforcement of disinfection and segregation in all doubtful cases which it renders possible should go far to prevent a recrudescence of the epidemic.

## XII.—INSPECTION OF IN-COMERS AND OUT-GOERS.

This subject may conveniently be dealt with under two heads—Inspection at Railway Stations and Inspection on Roads.

### *Inspection at Railway Stations.*

2. In consequence of the appearance of plague in Bombay, the Managing Committee of the Poona Suburban Municipality resolved, on the 29th September 1896, to post a medical man at the Poona Railway Station to watch passengers arriving from Bombay by Railway and to send any found to be suffering from plague to the shed provided for the purpose in the Sassoon Hospital compound. A medical man was accordingly posted at Poona Station from 30th September 1896 with two peons to work under him. He was instructed by the then Deputy Sanitary Commissioner Surgeon-Major Street as to how he should examine persons suspected to be suffering from plague, and directed to advise them to go to the Sassoon Hospital, and in the case of their refusing to do so to ascertain their destination and communicate it to the authorities concerned.

3. On 23th December the inspecting staff was increased to two medical men and four peons, who met all the passenger trains arriving from Bombay. On January 31st the inspecting staff was authorized to compel sufferers from the plague to go to the Plague Hospital. From February 20th the inspecting staff was required to watch persons leaving by rail as well as those arriving.



From January 16th a cart was specially engaged for the conveyance of sick persons from the station to the hospital, and stretchers were provided to carry patients from the platform to the cart.

4. On March 15th a European Assistant Surgeon was deputed by Government for passenger inspection duty at Poona Station. On March 21st the two Municipal Medical men were withdrawn and their duties taken up by four Hospital Assistants appointed by Government. On April 5th a second European Assistant Surgeon and three additional Hospital Assistants were detailed for duty. Thus the present strength of the inspecting staff at the Poona Station is two Assistant Surgeons and seven Hospital Assistants appointed by Government and four peons supplied by the Poona Suburban Municipality.

5. At first the inspection chiefly consisted in watching third class passengers as they passed the ticket collectors at the exits. Later on it was arranged with the Railway authorities to require all third class passengers to pass into a compartment specially allotted in the third class waiting room where they were inspected by medical officers, while one medical man watched the exit for first and second class passengers.

6. Subsequently the work was carried out as follows :—

Half an hour before the departure of a train outgoing third class passengers were collected in the third class waiting room, and made to pass through in single file after being examined. All persons suspected to be suffering from fever were detained, their temperatures were taken, and they were finally examined for plague in a small partitioned room. First and second class passengers were examined after they had taken their seats in their carriages. For the examination of arriving passengers two Hospital Assistants were placed at the exit door for third class passengers, and an Assistant Surgeon at the exit for first and second class passengers. Each passenger was examined as he passed through. Those found to be suffering from plague were sent to the General Plague Hospital. Observation cases were sent to the Sassoon Hospital up to April 22nd and subsequently to the General Plague Hospital.

7. The Southern Marátha Railway Company posted one Medical man at Poona Station on 29th October 1896, and another on 22nd March 1897, to examine outgoing passengers by their line. These two Medical men made their inspection on the overbridge leading to the Southern Marátha Railway platform.

8. The number of real and suspected plague cases reported to have been discovered by the inspecting staffs is given below :—

By Municipal Medical men ...	...	...	...	481
By Government Medical staff ...	...	...	...	155
By Southern Marátha Railway Medical men	...	...	...	163
Total ...				<hr/> 799 <hr/>

9. Details as to the number detected on each day are given in Appendices 48, 49, 50.

It may be noted that many of the cases reported to have been found are not traceable on any hospital register, and appear not to have been admitted to hospital. This applies particularly to the cases found by the Southern Marátha Railway Medical men.

10. I may mention here that the officers of the various Railway Departments and the Railway Police have done all they can to facilitate the inspection of passengers. The inspection work has been controlled by Surgeon-Major Street, while Mr. Plunkett has taken a leading part in making the arrangements it entailed.

11. Under instructions from the Collector of Poona a Medical man with two peons was posted at Kirkee Railway Station from 28th January 1897 to prevent persons affected with plague from alighting there and proceeding to Poona by road. On February 20th orders were given to watch outgoing as well

as incoming passengers. Seven suspected cases were discovered at Kirkee Station. The staff was withdrawn on May 23rd.

12. It may be mentioned that by Government Resolution No.  $\frac{1}{B}$  of 4th March 1897, Government suspended the booking of third class passengers from Poona and neighbouring stations except in the case of persons who had obtained written permits from the District Magistrate of Poona or myself. The restriction was, however, withdrawn a few days later.

#### *Inspection on Roads.*

13. On 28th January a Medical man was posted by the Collector at the Harris Bridge near Dápuri to inspect persons arriving by road and prevent any found to be suffering from plague from entering Poona. He was transferred to Poona City for other duty on March 13th. Three suspected cases of plague were discovered at this post.

14. After the work of the troops in the city commenced it was found that sufferers from the plague were removed from Poona by night in considerable numbers. Accordingly on the night of the 29th March, Cavalry pickets were placed on all the principal roads leading from the city to prevent the surreptitious removal of sick persons. On the 7th April, Native Infantry pickets were stationed at Sowar's Gate and Lákdí Pul for the same purpose. These Cavalry and Infantry pickets were kept on till search operations by the military ceased. The pickets had orders to detain all sick persons found by them and to send them to the General Plague Hospital for examination. In the event of a corpse of a person being removed without a certificate of the registry of his death, they were required to detain one of the bearers in order that the necessary inquiries might be made.

15. The number of plague cases and corpses found by the pickets in the course of the operations amounted to 103 and 23 respectively. Particulars of the numbers found on each day are given in Appendix 51. The work of the pickets was of value both as checking the removal of the sick from Poona and as leading to the detection of plague cases.

### XIII.—INOCULATION.

At an early stage of the operations it was thought desirable that the efficacy of inoculations against plague with Professor Haffkine's prophylactic lymph should be tested at Poona. A supply of lymph was accordingly obtained from Bombay, but it was found that none of the Medical officers employed on plague duty had leisure to attend to the inoculations. The assistance of Surgeon-Colonel Edge, Principal Medical Officer, Poona District, was solicited in the matter, with the result that Surgeon-Lieutenant Dove, A.M.S., was sent to be trained in Professor Haffkine's laboratory and was subsequently sent down to Poona to carry on inoculation.

2. The work was commenced on March 25th under the personal direction of Professor Haffkine. From March 27th it was continued by Surgeon-Lieutenant Dove. Inoculations were carried on within Poona Suburban limits at His Highness Aga Khán's Bungalow, which was kindly lent for the purpose, and at the Dinsha Maneckji Petit Dispensary in Poona Cantonment. It was not thought necessary to arrange for inoculations in the city as my inquiries led me to believe that few of the inhabitants would volunteer to be inoculated. Surgeon-Lieutenant Dove continued the inoculation work till May 13th, when as few people were coming forward to be inoculated his services were replaced at the disposal of the Army Medical Department and the work was made over to the Civil Surgeon.

3. Appendix 52 shows the numbers and nationalities of the persons who were inoculated each week. In all, up to May 20th, 1,361 inoculations were carried out.

4. The officers in charge of the various plague hospitals were instructed to note whether any cases of plague occurred among persons who had been inoculated. No such cases have been reported, which is evidence in favour of



the efficacy of Professor Haffkine's lymph. It has to be remembered, however, that the inoculations were not commenced till after the epidemic had passed its highest point, that a large proportion of the persons inoculated did not live in a highly infected locality, and that most of them did not belong to the classes that have been the chief sufferers from the plague in Poona.

#### XIV.—THE TROOPS EMPLOYED.

The troops employed on the operations against the plague were drawn from the following Corps:—

Royal Artillery.  
 Royal Horse Artillery.  
 Durham Light Infantry.  
 Royal Irish Rifles.  
 2nd Bombay Lancers.  
 Bombay Sappers and Miners.  
 2nd Bombay Grenadiers.  
 14th Bombay Infantry.  
 19th Bombay Infantry.  
 28th Bombay Pioneers.

Men were also taken from the Commissariat and Transport Departments and the Army Medical Staff. The number of troops employed at different periods of the operations is shown in Appendix 53. It will be seen that the greatest number of troops was employed from March 20th to May 5th, when the total number of British and Native troops on plague duty was 1,112. After May 5th, as the operations were contracted, the number of troops employed was gradually reduced till on June 1st it stood at 124.

2. The troops on plague duty were up to May 19th encamped at Parvati near the Sinhgad Road with the exception of those who were stationed as guards at the hospitals and segregation camps and (from April 26th) those who did duty as watchmen at the burial and burning grounds. When the work of the military search, fumigation, and limewashing parties ceased, the majority of the troops employed returned to military duty and the camp at Parvati was broken up. The Native Infantry who were retained for segregation and death registration work were moved to the General Segregation Camp, while the few men of the Cavalry and the British Regiments who remained on plague duty were allowed to live in their regimental lines.

3. Appendix 54 shows the chief alterations made from time to time in the constitution and strength of the search, fumigation and limewashing divisions, and gives other particulars regarding the employment of the troops. Appendices 55, 56 and 57 are tabular statements relating to guards on hospitals and camps, night picquets, and transport and ambulance respectively.

4. Disciplinary powers over the troops employed on the operations were vested in Major Paget, Commandant of the Plague Duty Camp. That officer's report, dated 20th May 1897, on the conduct and health of the troops is annexed (Appendix 58). The members of the Plague Committee concur with Major Paget in the high opinion he has expressed on the conduct of the troops, both Native and British. The discipline of the troops when at work in the city was excellent, and the utmost consideration was shown both by officers and men for the religious and social customs of the inhabitants. I may mention that reports on the conduct of the men who worked under them were called for from the officers commanding the various working parties, and that the reports received were without exception favourable as regards both British and Native Troops.

5. That the conduct of the men when engaged on plague work was so good is doubtless chiefly due to the fact that they were under the immediate command of British officers who were responsible for their discipline and good conduct just as they would have been if they had been employed on military duty. In the case of the search divisions, the supervision was particularly close. It was one of the principles of the search that the parties of a division should be kept together, as much as possible, and the officer commanding the division



was therefore seldom far away from any of the parties under him. In the case of the fumigation and limewashing divisions the supervision was not so close, as the exigencies of their work often compelled the parties of a division to work at a distance from each other. The limewashing and fumigation parties were however visited from time to time in the course of their morning's work by the officer commanding them. A statement of the orders issued to the troops from time to time regarding their work and conduct will be found in Appendix 59.

6. During the first few days of the work of the troops in the city many applications, written and verbal, relative to the operations, were, as might be expected, made to myself and the other members of Plague Committee. Most of these related to inconveniences or losses alleged to have been caused to individuals by the work of the troops. Some of the inconveniences pointed out were inseparable from the operations which we were conducting, while others we were able to prevent the recurrence of by the issue of standing orders. When complaints of theft were made and the information necessary to trace the culprits was not given, the applicants were referred to the Police. As our rules got to be understood by the people of Poona and our organization got more perfect, the number of applications diminished, and during the latter stages of the operations comparatively few complaints were received by us regarding the work of the troops. In order to check the making of false and frivolous complaints and at the same time to facilitate inquiries into complaints that might be well founded, we published a notification on March 26th (*vide* Appendix 4) to the effect that all complaints relating to the behaviour of the men employed on searching, fumigating and limewashing should be made on the spot to the officers commanding the divisions to which the men complained against belonged. The officers have been alive to the necessity of maintaining a high standard of conduct among their men, and it has never been alleged to the Committee that an officer has failed to inquire into a reasonable complaint which had been made to him.

7. The offences brought home to the troops engaged on plague duty are specified in Major Paget's report. The complaints made to the officers commanding search divisions which were unproved or were found to be false included three of theft. Besides these a few minor complaints of such matters as entering god-rooms and cook-rooms unnecessarily were made to the officers, but where the men had offended the prejudices of the people in this way they appeared to have done so through ignorance. One unproved complaint of theft was made to the officer commanding a fumigation division and another to the officer commanding the main picquet. Some complaints of the needless destruction of property as rubbish were made against the limewashers to the officer commanding the division, but they were generally found by him to be untenable. The orders passed to prevent needless destruction of property have already been referred to. It was a matter of great satisfaction to the members of the Plague Committee that no credible complaint that the modesty of a woman had been intentionally insulted was ever made either to themselves or to the officers under whom the troops worked.

8. The troops at the plague duty camp were under the medical charge of Surgeon-Lieutenant Kiddle. The men were paraded daily before they left the camp for plague duty, and men found not to be in thoroughly good health were not allowed by the Medical Officer to proceed. The health of the troops is reported by Surgeon-Lieutenant Kiddle to have been excellent, a result which is no doubt due to regular hours, good feeding and the careful supervision which he exercised. Not a single case of plague occurred among the troops employed. The total number of admissions to hospital from March 12th to May 19th was among British troops 70 and among Native troops 19. The majority of the admissions were due to minor ailments, and only 19 cases (12 among British and 7 among Natives) were of sufficient importance to call for the transfer of the patients from camp to a regular hospital. The only case that ended fatally was one of heat-apoplexy. The victim was a man of the Royal Irish Rifles who is believed to have contracted his illness through his own imprudence.

9. I have much pleasure in acknowledging on behalf of my colleagues on the Plague Committee as well as on my own account the valuable assistance

which we have received throughout the operations from Major Paget. His un-failing tact and courtesy have contributed in no small degree to the success of our measures. In the opinion that he has recorded regarding the officers and men engaged on the operations we fully concur. In addition to the good work that he has acknowledged we desire to place on record our appreciation of the work done by Lieutenant Mackenzie and subsequently by Lieutenant Owen Lewis in connection with death registration and the supervision of burial and burning grounds. We consider that the work that has been carried out by Major Paget and the officers and troops under him has been most successfully performed, and that it is chiefly due to their exertions that the plague in Poona has been practically stamped out.

#### XV.—FINANCIAL.

The time has not arrived for making up complete accounts of the expenditure on the plague operations at Poona. I will therefore confine myself to showing the allotments which were made by Government up to the 31st of May to meet the cost of the operations, and the disbursements which were made therefrom up to that date.

2. The following statement shows the allotments that have been made to myself and the Poona Plague Committee:—

Number and date of Government Resolution sanctioning allotment.							Amount.
							Rs.
<sup>1216</sup> <sup>716 P.</sup>	of 6th March 1897	...	...	...	...	...	10,000
<sup>1783</sup> <sup>1242 P.</sup>	of 1st April 1897	...	...	...	...	...	20,000
<sup>1903</sup> <sup>1319 P.</sup>	of 7th April 1897	...	...	...	...	...	60,000
<sup>2536</sup> <sup>1956 P.</sup>	of 10th May 1897	...	...	...	...	...	40,000
Total ...							1,30,000

3. The disbursements made from the abovementioned allotments up to 31st May 1897 are shown below:—

Item.				Amount.		
				Rs.	a.	p.
<i>Advances—</i>						
To Camp Commandant for pay of troops, &c.	...	...	...	56,999	11	4
To Chairman, Suburban Municipality, for maintenance of General Plague Hospital, &c.	...	...	...	22,000	0	0
To City Police Inspector	...	...	...	100	0	0
To Medical Officers	...	...	...	185	0	0
To Secretary, City Municipality	...	...	...	50	11	0
Total ...				79,335	6	4
<i>Establishments (including day labourers)—</i>						
Conservancy	...	...	...	14,321	2	8
Sanitary	...	...	...	993	8	4
Nurses	...	...	...	564	10	10
Medical Officer on inoculation duty...	...	...	...	425	12	11
Inoculation (subordinate establishment)	...	...	...	46	7	8
Plague office	...	...	...	49	13	2
Female searchers	...	...	...	952	10	11
Warehouse...	...	...	...	32	8	3
Burial grounds	...	...	...	265	5	4
Corporal sent to Bombay	...	...	...	21	4	0
Plague Police	...	...	...	153	7	8
Store-house and work-shop	...	...	...	659	13	8
Bombay Inspector lent for duty at Poona	...	...	...	218	4	0
Total ...				18,704	13	5

Item.				Amount.		
				Rs.	a.	p.
General Segregation Camp (construction)	...			6,814	0	0
Do. (maintenance)	...			3,465	11	5
Railway charges	...	...	...	292	8	3
Cooly hire	...	...	...	8	10	3
Cart hire	...	...	...	1,090	10	0
Conveyance hire	...	...	...	1,321	0	0
General Plague Hospital (construction)	...			7,000	0	0
Mahomedan do. (grant-in-aid)	...			1,000	0	0
Water-supply charges	...	...	...	458	11	11
Burial charges	...	...	...	308	8	9
Compensation	...	...	...	1,333	9	0
Disinfectants	...	...	...	2,518	10	0
Telegraph charges	...	...	...	676	1	0
Printing charges	...	...	...	142	2	0
Service stamps	...	...	...	60	0	0
Maps and stationery	...	...	...	53	7	0
Deadstock and furniture	...	...	...	986	7	8
Oil	...	...	...	99	5	1
Warehouse rent	...	...	...	7	10	3
Conservancy expenses	...	...	...	1,402	14	4
Inoculation expenses	...	...	...	53	3	0
Total	...			1,27,133	5	8

#### XVI.—CONCLUSION.

Paragraphs 1 to 3 missing.

4. In conclusion I would record my opinion that if a reasonably high standard of sanitation is to be maintained in the city of Poona, and the work that has been done there under Surgeon-Major Barry's supervision is to have lasting results, European control will for some time to come be absolutely necessary. The exact shape that control should take is a matter of detail, but I am convinced of the futility of expecting that the sanitation of the city will be better in the near future than it has been in the past, unless it is under the direction of a supervising authority that possesses practical knowledge and appreciation of European standards of cleanliness.





## APPENDIX 2.

### DIRECTIONS FOR SEARCHERS.

1—A search party is composed of three British soldiers and a Native gentleman. It is provided with a pickaxe, a lantern, a pot of paint and a note-book.

2—A search division is composed of 10 search parties and is under the command of an officer. A Medical Officer, one or more ladies and three Native soldiers are attached to each search division. It is provided with two ambulances and one cart to convey property to the segregation camp.

3—Search parties will make careful house-to-house inspection in the area assigned to their division in order to discover plague cases and dead bodies.

4—When a search party comes to a house, the Native gentlemen will explain the object of the visit to the inmates and demand admission.

5—Should the inmates fail to admit the search party promptly or should there be no one to open the house door the search party will force their way in.

6—The soldiers will carefully search all parts of the house, and in doing so may force open all inner doors which are not on application opened by the inmates.

7—In the case of the house of a Hindu the soldiers will not enter the cook-room or the god room unless—

- (i) There are persons in these rooms who refuse to leave them, or
- (ii) There is reason to suspect that these rooms contain a corpse or a sick person, or
- (iii) Access to other portions of the house can only be obtained through these rooms.

8—The soldiers will inspect all persons in the house in order to ascertain whether any of them are sick, provided that if the inmates so desire the inspection of the women in the house will be made by one of the ladies attached to the division.

9—It is the duty of the Native gentlemen attached to a search party to accompany the party through the house, to act as interpreter between the soldiers and the inmates of the house, to point out to them the god room and the cook-room, to search those rooms himself in cases in which there is no religious objection to his doing so, and to obey the orders given to him by the officer commanding the division.

10—The soldiers will not open boxes or cupboards unless they have reason to suspect that they contain corpses or sick persons.

11—On a corpse or a sick person being found one member of the party will summon the Medical Officer attached to the division, while the remainder will detain the inmates of the house. Should the Medical Officer after examination suspect that the case is one of plague a segregation squad will be sent for. Any person that the Medical Officer suspects to be suffering from plague will be removed in an ambulance with one member of the household as an attendant (should any be willing to accompany him) to a plague hospital. Such of the remaining inmates of the house as the Medical Officer may indicate will be taken charge of by the segregation squad. The inmates of the house and the neighbours should be desired to make immediate arrangements for the burial or burning of any corpse that may be found. Should nobody be found willing to undertake this duty a funeral party will be summoned from the City Police office.

12—The officer in charge of a search division will note the names of all plague patients and corpses and the number of the house, name of Street and the Peth where the patients and corpses are found.

13—The inmates of any infected house which is ordered to be vacated will be required to choose whether such valuable property as they may possess should be delivered to a neighbour after disinfection or should be sent to the warehouse. If they chose the latter alternative the property will be packed and marked with the letter W.

14—Persons removed to a plague hospital may take with them only such articles as the Medical Officer may permit. Persons removed to a segregation camp may send to the camp clothes, bedding, cooking pots and other necessities and comforts in the cart assigned for that purpose.

15—Except property to be removed to a plague hospital or a segregation camp no property shall be removed from an infected house till the house has been disinfected by the fumigators.

16—The mat or bedding of a plague patient will be burnt in the street, but no other property will be destroyed by search parties.

17—After searching a house the search party will paint such mark upon it as may from time to time be prescribed as a sign that it has been searched. An account must be kept of the number of houses searched.

18—The Medical Officer will cause a vertical red line to be painted on each infected house and the date of search to be painted beside it.

19—The Native soldiers attached to a search division will be employed on fastening up doors that have been forced open.

20—The Medical Officer will be accompanied by a man carrying a yellow flag to show his whereabouts.

## APPENDIX 4.

(1) *Notification, dated 13th March 1897.*—The public are informed that house-to-house inspections for the discovery of plague patients will take place daily in the City commencing at 6-30 A.M. It is necessary to examine all houses whether they are apparently occupied or not, and owners of unoccupied houses should therefore leave the keys with some neighbour as the doors will have to be forced open should it be impossible to open them otherwise.

(2) *Notification, dated 15th March 1897.*—The public are informed that the following operations for the suppression of the plague are being carried out in Poona City.

House-to-house visitation for the discovery of persons suffering from plague and dead bodies is made by parties of British soldiers accompanied by ladies and Native gentlemen. All sick persons found in the houses are examined by a medical man or woman, and if after examination they are suspected to be suffering from plague they are removed to a plague hospital where they may be accompanied by one attendant. Inmates of houses in which cases of plague are found are removed to a segregation camp and detained there 10 days. Persons removed to a segregation camp may take with them clothes, bedding and other articles they will require while residing there.

The fumigation parties have instructions to fumigate houses in which deaths or plague cases have occurred. After a house has been fumigated it should be left closed for four hours, after which the property inside may be taken charge of by the neighbours, or will, if the owner desires and the property is not bulky, be removed to the Municipal warehouse. Infected houses will be limewashed subsequently to fumigation. In addition to infected houses limewashers have instructions to limewash any house which is not in a sanitary condition.

(3) *Notification, dated 16th March 1897.*—House-holders are informed that when dwelling-houses are found vacated in the City of Poona they will be deemed to be infected by plague and will be dealt with accordingly.

(4) *Notification, dated 17th March 1897.*—The public are informed that the following instructions have been issued regarding the destruction of property in plague operations:—

When a plague-stricken person is found by a search party the mat or bedding which he has been using should be burnt in the street. No other property should be destroyed by the search parties.

No property should be destroyed by fumigating parties.

Before limewashing a house a limewashing party should burn all rubbish found in the house, but should not destroy property of any value to the inmates except when specially directed by a Medical Officer to do so.

(5) *Notification, dated 25th March 1897.*—The public are informed that all complaints relating to the behaviour of British and Native soldiers employed on searching, fumigating or limewashing should be made on the spot to the Officer in command of the division to which the soldiers belong. If the making of complaints is deferred till after the conclusion of the day's operations, it will usually be impossible to make any satisfactory inquiry into them.

(True copies)

R. A. LAMB,

Chairman, Poona Plague Committee.

12th August 1897.



## APPENDIX 5.

*Statement of the Daily Work of the Military Search Parties.*

Date.				Number of houses searched.	Plague cases found.	Corpses found.	Remarks.
13th	March	...	...	700	5	...	
14th	"	...	...	.....	...	...	
15th	"	...	...	750	9	3	
16th	"	...	...	820	2	...	
17th	"	...	...	888	15	1	
18th	"	...	...	866	6	4	
19th	"	...	...	913	1	3	
20th	"	...	...	1,147	4	4	
21st	"	...	...	Sunday.	...	...	
22nd	"	...	...	3,550	15	1	
23rd	"	...	...	3,121	4	2	
24th	"	...	...	3,928	11	3	
25th	"	...	...	4,297	15	3	
26th	"	...	...	4,253	6	1	
27th	"	...	...	4,500	15	2	
28th	"	...	...	Sunday.	...	...	
29th	"	...	...	3,976	17	3	
30th	"	...	...	4,045	16	3	
31st	"	...	...	4,085	13	5	
Total				41,839	154	38	
1st	April	...	...	4,143	4	1	
2nd	"	...	...	4,192	5	1	
3rd	"	...	...	4,993	27	3	
4th	"	...	...	.....	...	...	
5th	"	...	...	4,103	11	1	
6th	"	...	...	4,283	17	1	
7th	"	...	...	4,272	8	1	
8th	"	...	...	3,810	8	2	
9th	"	...	...	4,308	15	1	
10th	"	...	...	4,373	7	1	
11th	"	...	...	.....	...	...	
12th	"	...	...	4,002	6	...	
13th	"	...	...	4,085	3	1	
14th	"	...	...	4,115	6	1	
15th	"	...	...	4,047	3	1	
Total				54,726	120	15	
16th	April	...	...	4,312	6	3	
17th	"	...	...	4,318	5	2	
18th	"	...	...	.....	...	...	
19th	"	...	...	4,319	2	1	
20th	"	...	...	4,393	4	...	
21st	"	...	...	4,231	2	...	
22nd	"	...	...	4,269	2	1	
23rd	"	...	...	3,974	3	...	
24th	"	...	...	4,299	4	...	
25th	"	...	...	.....	...	...	
26th	"	...	...	4,103	4	...	
27th	"	...	...	4,492	6	1	
28th	"	...	...	4,283	1	1	
29th	"	...	...	4,470	...	...	
30th	"	...	...	4,286	4	1	
Total				55,749	43	10	

APPENDIX 5 - *continued.*

Date.			Number of houses searched.	Plague cases found.	Corpses found.	Remarks.
1st May	...	...	4,187	5	...	
2nd "	...	...	.....	...	...	
3rd "	...	...	4,056	1	...	
4th "	...	...	3,802	2	...	
5th "	...	...	3,887	4	1	
6th "	...	...	4,028	1	...	
7th "	...	...	4,217	2	...	
8th "	...	...	3,867	...	...	
9th "	...	...	.....	...	...	
10th "	...	...	4,374	1	...	
11th "	...	...	4,155	...	...	
12th "	...	...	4,238	...	...	
13th "	...	...	4,359	1	...	
14th "	...	...	3,962	2	...	
15th "	...	...	3,962	1	...	
16th "	...	...	.....	...	...	
17th "	...	...	3,791	...	...	
18th "	...	...	4,592	...	...	
19th "	...	...	4,303	1	...	
Total ...			65,810	21	1	
Grand Total from March 13th to May 19th ...			218,124	338	64	

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 6.

## DIRECTIONS FOR FUMIGATORS.

1. A fumigation party consists of one European and two Native soldiers. It is provided with a cart containing the necessary disinfectants and apparatus.
2. A fumigation division consists of 10 fumigation parties, and is under the command of an officer.
3. The officer in charge of a fumigation division will be supplied daily with a list of the houses to be fumigated. Houses intended to be fumigated are marked with a vertical red line. All houses either appearing on the list or marked with a vertical red line should be disinfected, unless the officer in charge of the division is satisfied they have already been disinfected.
4. When a party comes to a house that is on the list or is marked for fumigation it should be ascertained if possible in what part of the house the case occurred. If this information cannot be obtained the whole house should be treated as infected.
5. If there are any infected rooms from which air can be excluded by closing doors and windows and pasting over crevices with paper the fumigation process should be carried out.
6. The fumigation process is as follows :—  
One man enters the infected room and carefully pastes over all crevices with paper. The walls, ceilings and floor are then thoroughly flushed with the disinfectant fluid by means of a hand pump. For this one powder of perchloride of mercury or half a pint of carbolic acid is added to a pad of water. The clothes and other articles in the room are then spread about as far as possible and hung up where this is feasible. The fumigating chattie is next placed in the centre of the room four ounces of water and one ounce of sulphuric acid are measured out and poured into it. A fumigating powder is then thrown into the chattie, the room is vacated and the door is closed and pasted up on the outside. The neighbours should then be directed not to open the door before the arrival of a lime-washing party.
7. Rooms which cannot be made almost or entirely airtight should with all their contents be thoroughly flushed with perchloride of mercury or carbolic solution.
8. After disinfection of a house a horizontal red line should be painted across the vertical red line on the outside of the house and the date will be painted beside it.
9. Fumigation parties are not to destroy any property whatever, but they should burn all dead rats and mice that they may find.
10. The officer in charge of fumigation division will keep a list of the houses disinfected.

## APPENDIX 7.

*Statement of Houses disinfected daily by the Military fumigation parties.*

Date.	Number of houses disinfected.	Remarks.	Date.	Number of houses disinfected.	Remarks.
March 13th	14		April 1st	37	
" 14th	...		" 2nd	42	
" 15th	46		" 3rd	54	
" 16th	49		" 4th	...	
" 17th	65		" 5th	44	
" 18th	77		" 6th	43	
" 19th	81		" 7th	9	
" 20th	50		" 8th	27	
" 21st	...		" 9th	36	
" 22nd	168		" 10th	26	
" 23rd	66		" 11th	...	
" 24th	88		" 12th	29	
" 25th	103		" 13th	16	
" 26th	72		" 14th	18	
" 27th	101		" 15th	24	
" 28th	...				
" 29th	74				
" 30th	81				
" 31st	54				
Total	1,189		Total from April 1st to 15th	406	



## APPENDIX 7—continued.

Date.	Number of houses disinfected.	Remarks.	Date.	Number of houses disinfected.	Remarks.
April 16th ...	21		May 1st ...	12	
" 17th ...	28		" 2nd ...	...	
" 18th ...	...		" 3rd ...	11	
" 19th ...	48		" 4th ...	7	
" 20th ...	18		" 5th ...	12	
" 21st ...	12		" 6th ...	6	
" 22nd ...	12		" 7th ...	7	
" 23rd ...	14		" 8th ...	4	
" 24th ...	10		" 9th ...	...	
" 25th ...	...		" 10th ...	7	
" 26th ...	16		" 11th ...	7	
" 27th ...	20		" 12th ...	7	
" 28th ...	12		" 13th ...	5	
" 29th ...	9		" 14th ...	1	
" 30th ...	9		" 15th ...	4	
			" 16th ...	...	
			" 17th ...	4	
			" 18th ...	...	
			" 19th ...	...	
Total from April 16th to 30th ...	229		Total ...	94	
			Grand Total from 13th March to 19th May .	1,918	

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 8.

## DIRECTIONS FOR LIMEWASHERS.

1. A limewashing party consists of one European and three Native soldiers. It is provided with a cart containing lime wash, brushes, buckets, &c.

2. A limewashing division consists of 10 parties and is under the command of an officer. One cart for conveying property to the warehouse is attached to a division.

3. The officer in charge of a division will be furnished daily with a list of houses to be limewashed.

4. When a party comes to a house to limewash it all articles in the house other than bulky articles which are not likely to be stolen should be removed, and either put in the cart for removal to the warehouse or left in the charge of neighbours. If a fumigating chattie has been left in the house by the fumigators it should be taken charge of.

5. All rubbish found in the house should then be burnt, but no property of any value to the inmates should be destroyed except under the orders of a Medical Officer.

6. The whole interior of the house should then be limewashed. If the floor is of earth it should be dug up to a depth of 4 inches and disinfected with liquid chloride of lime.

7. If the limewashing of the houses on the list will not occupy the division for the whole morning the officer in charge should employ his parties on any houses that appear to him to require limewashing.

8. Houses to be limewashed have a red cross painted on them. On completion of the limewashing a second horizontal red line should be painted on the cross and the date should be added.

9. The officer in charge of a division should keep a list of the houses limewashed.

## APPENDIX 9.

*Statement of houses limewashed daily by the military limewashing parties.*

Date.	Number of houses limewashed.	Remarks.	Date.	Number of houses limewashed.	Remarks.
March 13th	...		April 16th	44	
" 14th	...		" 17th	24	
" 15th	15		" 18th	...	
" 16th	35		" 19th	42	
" 17th	34		" 20th	43	
" 18th	50		" 21st	63	
" 19th	35		" 22nd	69	
" 20th	46		" 23rd	70	
" 21st	...		" 24th	53	
" 22nd	52		" 25th	...	
" 23rd	49		" 26th	42	
" 24th	59		" 27th	84	
" 25th	88		" 28th	30	
" 26th	132		" 29th	29	
" 27th	123		" 30th	19	
" 28th	...				
" 29th	96		Total April 16th to 30th	612	
" 30th	92				
" 31st	85				
Total	991		May 1st	22	
			" 2nd	...	
April 1st	95		" 3rd	17	
" 2nd	70		" 4th	17	
" 3rd	108		" 5th	11	
" 4th	...		" 6th	11	
" 5th	186		" 7th	11	
" 6th	110		" 8th	9	
" 7th	102		" 9th	...	
" 8th	103		" 10th	10	
" 9th	95		" 11th	31	
" 10th	68		" 12th	22	
" 11th	...		" 13th	25	
" 12th	71		" 14th	30	
" 13th	79		" 15th	25	
" 14th	54		" 16th	...	
" 15th	38		" 17th	22	
			" 18th	13	
Total from April 1st to 15th	1,179		" 19th	10	
			Total May 1st to 19th	286	
			Grand Total	3,068	

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.



## APPENDIX 10.

## POONA CITY MUNICIPALITY.

*Special Measures to be taken under Section 73 of the Municipal Act of 1873 for the suppression of Bubonic Plague in the Municipal District.*

As sanctioned by the Commissioner, C. D., in his Memorandum No. <sup>P</sup><sub>252</sub>, dated the 29th January 1897.

1. The Health Officer, or any other officer of the Municipality specially empowered by the Managing Committee in this behalf, shall inspect all persons coming into Poona either by Railways or other routes, and shall detain and send to the Hospital put up for the purpose all those, that may be found to be suffering from the plague.
2. The Health Officer, or the Secretary, or any other officer specially deputed by either for the purpose, shall have power to enter into private premises for the purposes of inspection, or of seeing any suspected case or cases of the plague, and shall take such steps for cleansing and disinfecting the premises or opening up any part of the building, for the admission of light and air, as may be deemed necessary.
3. Persons found to be suffering from the plague in the Municipal District shall be removed under the orders of the Health Officer or any other officer authorized in this behalf by the Health Officer or the Secretary to the hospital put up for the purpose of treating plague cases.
  - (a) Provided that no person shall be so removed if it appears to the Health Officer that such person is in such a condition that removal will hasten his death or imperil his chances of recovery.
  - (b) Provided that it is allowable to any caste or family or any section of a community to arrange for a separate hospital on a suitable spot to be approved by the Managing Committee for the treatment of any cases that they may send there.
  - (c) Provided that such hospital or hospitals shall be always open for the inspection of the officers of the Municipality.
4. Any municipal officer or servant shall, immediately on discovering any case of plague report the same to the Health Officer, and the steps taken under the preceding rules.
5. It shall be incumbent upon the head of every family and every householder to immediately report to the Municipal Secretary or Health Officer any case of plague, occurring in his family, or household.
6. On receipt of a report of any suspected case of plague the Health Officer or any other officer to be deputed by him shall immediately visit and deal with the case in accordance with these orders.
7. The Secretary or the Health Officer may, at any time, direct the immediate cleaning, disinfection, and whitewashing of any premises, which appear to them to be in an insanitary condition, or may carry out such work themselves, the cost thereof being recovered from the owner or occupier or occupiers of the premises, should he or they fail to do satisfactorily or within the given time the work.
8. The Health Officer and the Municipal Secretary are empowered to order the destruction of clothes or articles in the immediate use of the sick, which in their opinion it is impossible to satisfactorily disinfect and such cases should be reported to the Chairman of the Managing Committee.

*By order,*

M. K. KUMTHEKAR,  
Secretary.

# APPENDIX 11.

Weekly Statement showing Details of Plague Work of Assistant Health Officers, Poona City Municipality.

Week.	Number of live plague cases visited and reported.	NUMBER OF CASES SENT TO PLAGUE HOSPITALS.				DESCRIPTION OF PATIENTS SENT TO PLAGUE HOSPITALS.				NUMBER OF DEAD BODIES REPORTED.				Number of persons segregated.	Number of houses disinfected.	Number of houses inspected and searched in as per lists from Municipal Medical Officer.	REMARKS.
		S a n a m Hospital.	Hindu Hos- pital.	Mahomedan Hospital.	Total.	Male.	Female.	Children.	Total.	Male.	Female.	Children.	Total.				
22nd January 1897	...	...	...	...	...	...	...	...	...	6	9	...	15	...	15	...	This is the work of the following Assistant Health Officers: Doctor Dhandhere, Doctor Solomon, and Doctor Bhau Vitthoji.
29th do.	2	...	...	...	...	...	...	...	...	22	19	3	44	...	44	...	
5th February 1897	3	...	...	...	...	...	...	...	...	32	17	4	53	...	53	...	
12th do.	...	4	...	...	4	1	2	1	4	19	17	1	37	...	41	...	
19th do.	...	9	...	...	9	2	6	1	9	15	10	1	26	...	35	...	
26th do.	...	21	...	...	21	7	14	...	21	28	23	3	54	2	75	...	
5th March 1897	...	35	...	...	35	17	16	2	35	41	41	11	93	...	63	...	
12th do.	...	54	...	...	55	30	18	7	55	47	63	10	120	...	85	...	
19th do.	...	131	2	8	141	63	63	15	141	48	37	14	99	6	36	254	
26th do.	...	88	6	10	104	46	43	15	104	25	26	12	63	84	...	256	
2nd April 1897	...	55	8	6	69	32	31	6	69	12	16	6	34	37	...	134	
9th do.	...	53	5	3	61	29	25	7	61	6	8	5	19	17	...	96	
16th do.	...	39	...	2	41	13	25	3	41	8	3	1	12	15	...	130	
23rd do.	...	26	4	1	31	12	15	4	31	5	3	2	10	2	...	80	
30th do.	...	13	1	...	14	7	5	2	14	5	1	1	7	14	6	69	
7th May 1897	...	8	1	1	10	4	4	2	10	...	...	...	...	8	...	47	
14th do.	...	5	...	...	5	3	2	...	5	...	...	...	...	3	...	27	
19th do.	...	7	1	...	8	4	3	1	8	...	...	...	...	16	...	22	
Total	5	548	28	32	608	270	272	66	608	319	293	74	686	204	453	1,115	

Ending Friday.

R. A. LAMB  
Chairman, Poona Plague Committee.



## APPENDIX 12.

*Work of Inspectors on Plague duty, Poona City.*

Weeks.	Houses inspected.	Houses disinfected.	Houses fumigated	Openings made.	Plague cases sent to Hospital.	Inmates sent to Segregation.	Houses lighted and ventilated.	REMARKS.
Ending 5th March 1897	61	36	11	69	.....	.....	.....	This work does not include the work of Inspectors Bennet and Shannon who sent no record of their work. This is the work of Messrs. Curtis, Ryan, Fitzbarret and Doctor Bhau Vithoji.
" 12th "	86	83	6	31	.....	.....	.....	
" 19th "	244	116	4	62	1	.....	.....	
" 26th "	189	78	3	105	.....	5	.....	
" 2nd April 1897	258		3	144	3	15	.....	
" 9th "	489	77	9	240	1	7	152	
" 16th "	765	40	7	655	.....	.....	367	
" 23rd "	770	18	3	796	.....	.....	290	
" 30th "	1,298	17	1	938	1	4	409	
" 7th May 1897	1,594	6	.....	1,274	.....	.....	441	
" 14th "	1,134	2	.....	1,010	.....	.....	354	
" 19th "	825	5	.....	722	.....	.....	244	
	7,713	534	47	6,046	6	31	2,257	

R. A LAMB,  
Chairman, Poona Plague Committee.

# APPENDIX 13.

Statement showing the work done by the Conservancy Department from 12th March to 20th May 1897 during Plague operations.

No.	Peith.	Number of houses.	Number of Public Latrines.		Number of private privies.	Number of private privies connected with main drain.	Number of privies having cess-pools.	Number of privies repaired since Plague operations began.	Number of private privies rebuilt since plague operations began.	Number of private privies built new since plague operations began.	Number of cess-pools built since plague operations began.	Total number of privies flushed since plague operations began.	REMARKS.
			Latrines.	Seats.									
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Raste ...	512	2	4	361	290	71	15	3	...	30	1,590	
2	Nyahal ...	101	...	...	75	25	50	2	...	...	22	298	
3	Shanwár...	607	1	4	419	402	17	22	...	3	14	1,257	
4	Budhwár	544	...	...	382	378	4	...	...	1	...	1,910	
5	Narayan...	486	3	14	234	203	31	...	...	1	3	1,170	
6	Ganj ...	866	7	30	274	69	205	2	...	2	2	1,644	
7	Ghorpáde	302	3	16	11	...	11	1	...	...	...	66	
8	Musbaferjang	15	...	...	2	...	2	...	...	...	...	12	
9	Gultekadi	59	...	...	...	...	...	...	...	...	...	...	
10	Nána ...	772	7	41	228	16	187	3	...	...	30	1,140	
11	Somwár ...	418	...	...	309	66	243	10	2	1	71	1,336	
12	Bhamburde	507	2	10	13	...	13	4	...	...	5	52	
13	Palachiwádi	154	...	...	1	1	...	...	...	...	...	4	
14	Bhawáni...	1,071	10	58	215	55	171	...	3	11	75	860	
15	Mangalwár	351	8	34	37	3	34	15	...	...	12	1,813	
16	Raviwár ...	1,435	...	...	1,045	758	221	310	1	2	73	6,853	
17	Ganesh ...	458	5	29	232	148	64	80	1	...	12	1,908	
18	Sadashiv	825	5	38	444	428	16	77	1	...	5	1,332	
19	Vatal ...	664	...	...	406	205	183	2	...	...	98	1,518	
20	Kasba ...	1,511	5	52	768	695	73	3	2	2	1	1,640	
21	Shukrawár	1,638	17	63	942	758	204	8	3	1	22	2,826	
Total		13,296	75	393	6,398	4,480	1,800	554	16	24	475	28,829	

R. A. LAMB,  
Chairman, Poona Plague Committee.



## APPENDIX 14.

*Notification.*

Whereas on account of the coming into Poona of persons suffering from a dangerous disease namely Bubonic Fever, the Poona Cantonment is threatened by an outbreak of such disease amongst the inhabitants thereof, and the General Officer of the Bombay Command is of opinion that the ordinary provisions of the Cantonment Rules, or of any other law in force in Poona, are insufficient for the purpose of effectually preventing the spread of such disease, *Public Notice* is hereby given that, with the sanction of Government and pursuant to the provisions of the General Order by the Government of India No. 1160, dated 23rd October 1896, republished in Notification 4801 at page 1104 of the *Bombay Government Gazette* for 1896, Part I, the General Officer of the Bombay Command hereby prescribes the following temporary regulations to be observed by the public and all persons concerned, and further that the General Officer of the Command will, if necessary, take such special measures as are hereby indicated for carrying into effect the object of the said regulations :—

1. No person suffering from Bubonic Fever shall enter or be conveyed or be caused to be conveyed into the Cantonment limits.

2. Every person having the control or charge of any building, or part of a building, shall, on demand by the Cantonment Magistrate, the Principal Medical Officer, Poona District, the Staff Surgeon, or any other Medical Officer, appointed in this behalf by the Principal Officer, or the Executive Officer of the Cantonment immediately cause such building or part of a building to be opened and shall permit the Cantonment Magistrate or any other such officers as aforesaid to cleanse and disinfect the same, and to cause the removal for disinfection or destruction of any bedding or clothing or of any other goods or articles found therein.

For the purpose of carrying into effect the objects aforesaid the Cantonment Magistrate or any such officer as aforesaid, will whenever he shall deem it necessary so to do, break open and forcibly enter any such building or part of a building, and without previous notice to the owner or occupier thereof, will cleanse and disinfect the same, and direct or cause the forcible removal and disinfection or destruction of any bedding, clothing, goods as articles as aforesaid.

3. Any person suffering from Bubonic Fever, wheresoever found, shall on a certificate signed by the Staff Surgeon or by any duly qualified Medical Officer or practitioner that such person is suffering from the said disease, be liable to be removed to the Sassoon Hospital or such other hospital as may from time to time be appointed for the reception of patients suffering from Bubonic Fever for treatment.

For the purpose for carrying into effect the objects of this regulation the Cantonment Magistrate, the Executive Officer or any Police Officer empowered by the Cantonment Magistrate in this behalf, will, whenever he shall deem it necessary so to do, cause any person in respect of whom such certificate as aforesaid has been made, to be removed to the Sassoon Hospital and it shall be lawful for the Medical Officer for the time being in charge of the Sassoon Hospital to require such person to remain in the said hospital until he shall have been pronounced free from the said disease.

Provided always that no person suffering from the said disease shall be so removed if, in the opinion of the Principal Medical Officer, Poona District, the Staff Surgeon or any other Medical Officer appointed in this behalf by the said Principal Medical Officer, such person is provided with proper lodging or accommodation and is being properly cared for.

4. Every house in which any case of the aforesaid disease exists or has existed shall for so long as the Cantonment Magistrate shall deem necessary, be isolated in accordance with such orders as the Cantonment Magistrate may in each case prescribe, and every occupant of such house and other person who may be therein, or who may resort or desire to obtain access thereto, shall obey any order, which he may receive from the Cantonment Magistrate or any Cantonment or Police Officer, empowered by the Cantonment Magistrate in that behalf, prohibiting ingress or egress from such house.

For the purpose of carrying into effect the objects of this regulation the Cantonment Magistrate or any Cantonment or Police Officer as aforesaid will, if necessary, forcibly prevent persons from entering or leaving such house.

5. Whoever commits a breach of any of the aforesaid regulations shall be liable to be punished under Section 188, Indian Penal Code, with imprisonment for six months, or with fine which may extend to Rs. 1,000 or with both.

*By order,*

E. D. NEWNHAM SMITH, Lieut.-Colonel,  
Cantonment Magistrate, and Secretary,  
Cantonment Committee.

20th January 1897.

## APPENDIX 15.

*Instructions in carrying out search for plague cases and disinfecting houses and segregation in the Poona Suburban Municipal District.*

- (1). Persuasion and gentleness to be used.
- (2). The privacy of women to be disturbed as little as possible and only by women.
- (3). Caste and religious usages of the people to be treated with all consideration.

1. Before entering a house for purpose of inspection, intimation to be given and the inmates asked to come out of it to admit of inspection of the house, women to be permitted to withdraw if they so desire into a portion of the house where their privacy will be disturbed by women only and women only visit them. The inspection of a room to which women have so withdrawn will be made by women only, all other portions of the house will be visited in the course of the inspection by the searching party.

2. Cooking rooms and rooms devoted to sacred purposes will not be entered, but every facility must be afforded by the occupant of the house to satisfy the search party that no one is concealed in such places. If it is suspected that a sick person is concealed in such a place it will have to be searched, caste and religious usages being treated with all consideration. To admit of dark rooms being searched lanterns will be used.

3. Any cases of plague found will be segregated by the patient being required on the Municipal or other Medical man in attendance declaring it to be a case of plague, to go to a Hospital recognized for the treatment of such cases. The Hospitals at present so recognized are—

- (1) The General Plague Hospital on the Sangam.
- (2) The Mahomedan Plague Hospital on the Shankarshet road.
- (3) The Hindu Hospital.

4. In houses in which plague cases have occurred or been found the healthy members of the family shall be required to remove from the house to a segregation camp for eight days, at the end of which time should all have continued healthy, they will be permitted to return.

5. In the meantime the building in which the case of plague may have occurred shall be opened out, cleaned and disinfected according to the special rules issued by the Plague Committee or by other authority for the purpose. The house so vacated shall not be re-entered until application be made to the Chairman of the Managing Committee of the Poona Suburban Municipality and on the written authority of that Officer who will, if necessary, obtain the orders of the Plague Committee before giving authority to return to vacated houses.

6. Houses found closed will be opened by search parties; if the servant or person in charge delays to open them to admit of inspection, while the main building found closed is being opened by the servant or person in charge the examination of out-houses will proceed to prevent waste of time.

7. In the case of houses where there is no person in charge, the houses will be opened and reclosed after examination by the search party, staples being put on to secure the entrance door.

8. Houses examined shall be marked in a conspicuous place with the letter E about 3 or 4 inches in length to denote that the house has been examined.

9. The Municipal Inspector of the Division will attend the search parties, and keep a register of all houses searched showing the Municipal numbers. This Register should in addition to the main building show the number of out-houses searched, bearing the particular Municipal number registered. The Register should also show date of inspection by the search party.

10. At the close of each day's work, which will begin at 6-30 A.M. and close at 11-30 A.M., the Divisional Inspector or other Municipal Official in attendance on the search party shall submit a report to the Secretary of the Municipality containing the following particulars:—

- (1) Number of houses visited.
- (2) Do. limewashed.
- (3) Do. of roofs opened.
- (4) Do. of floors dug up.
- (5) Do. vacated.
- (6) Do. condemned as insanitary and unfit for human habitation.
- (7) Do. requiring alteration with reference to ventilation or as the case may be.
- (8) Do. of cases of plague found and sent to a Plague Hospital.
- (9) Do. of persons required to go to a segregation camp.

11. The present daily returns for the Municipal District show (1) the number of attacks and (2) deaths.

The daily report to be made of the day's work should have an appendix stating only in figures and not by names, the plague hospital statistics for the day ending 8 A.M. under the following heads :—

Hospitals.	Plague Hospital.	Sassoon Hospital.
Number of plague patients in hospital at 8 A.M. on the day of report.		
Do. of deaths.		
Do. of recoveries.		
Do. of remaining under treatment.		

12. The daily and weekly returns now furnished to the Chairman of the Plague Committee and to the Deputy Sanitary Commissioner will continue to be rendered.

Poona, 22nd March 1897.

(Signed) A. H. PLUNKETT,  
City Magistrate.

(True copy)  
R. A. LAMB,  
Chairman, Poona Plague Committee.



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APPENDIX XVI.

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*Daily statement showing result of treatment of Plague and suspected Cases in David Sassoon General Hospital from commencement of outbreak to 20th May 1897.*

Date.	SUSPECTED CASES.					PLAGUE CASES.							REMARKS.				
	Number of fresh cases detained or admitted during the day.	Balances of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day under report				Number of fresh cases detained or admitted during day under report excluding those shown as shown in column 7.	Balance of cases left over from previous day.	Total.	Of those entered in column 13 the number who during the day under report						
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.				Balance remaining under observation at end of day.	Have died.		Have recovered and been discharged.	Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
8th October to 4th December 1896.	...	...	...	...	...	...	...	...	10	...	...	10	5	...	...	5	
5th December 1896...	...	...	...	...	...	...	...	...	3	...	5	8	2	...	...	6	
6th "	...	...	...	...	...	...	...	...	1	...	6	7	...	...	1	6	
7th "	...	...	...	...	...	...	...	...	2	...	6	8	...	...	...	6	
8th "	...	...	...	...	...	...	...	...	5	...	6	11	1	...	...	10	
9th "	...	...	...	...	...	...	...	...	3	...	10	13	2	...	...	11	
10th "	...	...	...	...	...	...	...	...	...	...	11	11	1	...	...	10	
11th "	...	...	...	...	...	...	...	...	...	...	10	11	1	...	...	9	
12th "	...	...	...	...	...	...	...	...	1	...	9	12	...	...	...	12	
13th "	...	...	...	...	...	...	...	...	3	...	12	13	...	...	...	13	
14th "	...	...	...	...	...	...	...	...	1	...	13	14	...	...	...	12	
15th "	...	...	...	...	...	...	...	...	3	...	12	15	1	...	...	13	
16th "	...	...	...	...	...	...	...	...	2	...	13	15	1	...	...	14	
17th "	...	...	...	...	...	...	...	...	2	...	14	16	1	...	...	15	
18th "	...	...	...	...	...	...	...	...	1	...	15	16	2	...	...	13	
19th "	...	...	...	...	...	...	...	...	...	...	13	18	1	...	...	12	
20th "	...	...	...	...	...	...	...	...	...	...	12	14	1	...	...	13	

21st	13	1	15	2	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1	...	13	15	1</
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## APPENDIX 16—continued.

[illegible]



## APPENDIX 16—continued.

Date.	SUSPECTED CASES.					PLAGUE CASES.								REMARKS.			
	Number of fresh cases detained or admitted during day under report.	Balance of cases left over from previous day.	Total.	OF THOSE ENTERED IN COLUMN 4 THE NUMBER WHO DURING THE DAY UNDER REPORT.				Number of fresh cases detained or admitted during day under report excluding those shown in column 7.	Number of suspected cases transferred as plague cases during day under report as shown in column 7.	Balance of cases left over from previous day Total.	OF THOSE ENTERED IN COLUMN 13 THE NUMBER WHO DURING THE DAY UNDER REPORT						
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.				Balance remaining under observation at end of day under report.	Have died.	Have recovered and been discharged.		Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
8th April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	European patient.
9th	3	...	3	...	2	1	...	...	...	1	1	2	...	...	1	1	
10th	3	...	3	...	2	1	...	...	...	1	1	2	...	...	1	1	
11th	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	1	
12th	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	1	
13th	5	...	5	...	...	2	...	...	...	2	1	3	...	...	...	1	
14th	...	3	3	...	...	...	...	3	...	...	...	...	...	...	...	1	
15th	2	3	5	...	...	2	...	3	...	2	...	2	1	...	1	1	
16th	3	3	6	...	1	1	...	4	...	1	...	1	1	...	...	1	
17th	...	4	4	...	...	...	...	4	...	...	...	...	...	...	...	1	
18th	9	4	13	...	11	1	...	1	...	...	...	...	...	...	...	...	
19th	11	1	12	...	8	2	...	2	...	2	...	2	...	...	2	...	
20th	2	2	4	...	...	2	...	2	...	...	...	2	...	...	2	...	
21st	...	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	
22nd	...	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	
23rd	...	2	4	...	1	1	...	2	...	1	...	...	...	...	1	...	
24th	...	...	2	...	...	...	...	1	...	...	...	1	...	...	...	...	
25th	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	
26th	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	
27th	...	1	2	...	1	1	...	...	...	...	...	...	...	...	...	...	

No cases were admitted of Bubonic plague up to 20th May 1897.

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.



## APPENDIX 17.

*Statement of men, women and children treated during the epidemic at David Sassoon General Hospital, Poona, up to May 20th of 1897.*

Sex.	Number admitted.	Number found free from plague and discharged.	Number found to be suffering from plague.	Number discharged cured.	Number died.	Number otherwise disposed of.	Number transferred to the special Plague Hospital, Poona.	Number remaining on May 20th of 1897.
Men ...	194	26	168	33	92	26	17	...
Women ...	33	6	27	4	19	3	1	...
Children ...	11	2	9	3	6	...	...	...
Total ...	238	34	204	40	117	29	18	...

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 18.

## REPORT ON THE GENERAL PLAGUE HOSPITAL, POONA.

No.  $\frac{1}{y}$  of 1897.

Poona.

From

SURGEON-MAJOR J. P. BARRY, B.A., M.B., I. M. S.,  
In Supervisional Charge, General Plague Hospital, Poona ;

To

THE PRESIDENT, PLAGUE COMMITTEE,  
Poona.

Sir,

I have the honour to submit the following report on the General Plague Hospital, Poona.

The Hospital was opened on the 5th February when 18 cases were transferred to it from the Sassoon Hospital where they had previously been under treatment.

*I.—Site.*

The place selected for the Hospital is not an ideal one. It is on black soil, the worst that could have been chosen had the prospect of the Hospital being open during the rains been borne in mind. There was also a large brick kiln at the north-west corner of the camp where mounds of organic matter such as is employed in burning bricks lay putrefying all the hot weather. At certain times of the day the breezes blew over this filth into the camp, making the air very offensive and breeding a nuisance of flies. These brickfield-bred flies cared nothing for our antiseptic atmosphere, iodoform and chloride of lime. Their pet rendezvous was the eyes of the sick. They gave us a lot of trouble.

On the other hand the place had advantages. It was in the Suburbs near, yet isolated, and was so spacious and so conveniently situated by the river as to enable us to make our whole system of management self-contained. Not only had we room to treat the sick, but we had separate accommodation for our convalescents close at hand ; our own burial and cremation grounds being only a good stone's throw from the skirts of the Camp. Thus we had not to send our dead along the road to create unpleasantness or danger for the public.

## II.—The Wards.

The hospital was opened with the following arrangements:—

- 1 Observation ward.
- 1 Convalescent ward.
- 7 Plague wards.
- 1 Servants' quarters.
- 1 Private attendants' quarters.
- 1 Quarter for Medical Officer and Hospital Assistant.
- 1 Quarter for compounder and dispensary.
- 1 Store-room.
- 1 Wash-house.
- 2 Bathing platforms, one for each sex.
- 1 Police quarter.

Two water pipes with three taps supplied the camp with water for drinking, cooking, washing and bathing.

There were four latrines. As our numbers increased, other huts were put up till the camp presented the appearance given in the accompanying drawing with hut accommodation for 220 sick, excluding convalescents. The huts were lean-to in form and measured  $60 \times 12$  giving accommodation for 10 patients each. This was found a very convenient number to deal with for administration purposes. The shape and size were generally adhered to throughout the camp. The arrangement was in echelon, 60 feet separating wards in the same line from each other and 70 feet separating line from line. The ventilation was excellent. The camp faced north so that the sick were spared the full effulgence of the east and west sun.

The huts were built of grass walls and roof—chapper—with a lining round three sides of bamboo matting. The fourth wall facing north in which the doors were placed was composed of chapper only.

## III.—Fire.

These materials being of the most inflammable character made it imperative to take all possible precautions against fire. Nothing was more impressed on the attention of the whole establishment including the military guard than the necessity of being on the alert against fire. Every hut had a dozen matkas always full of water along the length of the back wall and reserve barrels of water for fire purposes were dotted in profusion all over the camp. In addition to these, a collection of stout bamboo sticks with metal hook mountings were placed by the fire engine shed to beat down or drag away lengths of burning chapper if fire should break out. Three night watchmen were kept all night perambulating the camp, whose special duty it was to watch the lamps in the wards and to prevent people smoking. No greater anxiety lay on our mind than the protection of the sick from fire. No alarm of this kind occurred at any time.

If I had anything to do again with a camp of this nature, I should prefer to have all the walls of bamboo matting as less liable to sudden combustion than hay.

## IV.—Equipment of Wards.

There was always a plentiful supply of ice kept in an icebox near the officer for cool drinks and cerebral cases and rubber ice caps were also provided. There were ten country cots in each ward. Each cot had a rug, pillow, sheet and blanket; under each bed there was a chatty for discharges and each patient had a pannikin and tin dish for his food. Three small tables—teapoys—were in each ward to hold the medicine bottles, folio of cases, surgical tray, irrigator, &c. There was also a locked box for spare blankets and sheets in charge of the ward boy or ward ayah. Hand punkahs against flies were also available. A large well-protected lamp was kept in each ward and there was a supply of water-proof sheets. Those without proper clothes of their own or on discharge were given clothes from store: females a saree and choli, males a bundi, dhoti, cap or turban. Hot water for fomentation, &c., was available from two 50 gallon boilers. Outside each ward were the following articles for disinfecting the hands of the establishment:—

- 1 Wash-hand glazed basin on stand.
- 1 Quart bottle of creasotine.
- 1 Half barrel of water.

One tablespoonful of creasotine added to the water in the basin made an excellent soapy disinfectant. No towels were allowed to be used, the film of disinfectant drying on the fingers almost immediately. Towels are foul things in a plague hospital. They are liable to be soiled by every hand. The safest plan is to do without them. Creasotine owing to its composition—coal tar boiled with caustic potash—makes an excellent combination of soap and disinfectant. It diffuses in water at once like phenyl. It has the advantage of being cheaper than phenyl.

The floors of the wards were leeped—three times a week with cowdung prepared with weak antiseptic solution.



### V.—*The Establishment.*

The accompanying table gives a list of the establishment as it existed when pressure was greatest. It was being constantly modified according to circumstances. What I aimed at in opportuning the ward servants was as nearly as possible to have one attendant for five patients. Considering each had some relative in attendance this proportion was sufficient.

### VI.—*The European Nurses.*

They arrived as the trouble was declining. Two remained just over a month, one still remains. They were exceedingly wishful to render every help, and if there had been much surgical work as in a war their skill would have been invaluable. Their spirit of devotion was beyond all praise. But I am bound to say that under the circumstances their labours were largely wasted. There was a want of proportion between results and sacrifices. Ignorance of the people, their speech, their tastes, their food handicapped the nurses insuperably. The language of pantomime is wearying to patient and nurse. Their presence was glorious, but it was not nursing.

### VII.—*The Military Guard.*

The guard supplied by the 19th Bombay Infantry drew a cordon of sentries round the camp. Admission and exit were conducted by a system of passes. This rule was imperative to make isolation real, but was most useful also for the protection of camp property. The conduct of the men of the guard throughout was admirable.

### VIII.—*The Police.*

Our experience of the value of the Police was unfortunate. Their presence was intended to act as a check on petty larcenies of which I had to complain, and to recover what was stolen. The Police I got seemed useless for both purposes. I did not recover any article stolen. If it were not for a certain amount of terror inspired by the military guard and the stringency of the sentry's orders, I do not like to think what ravages small thieving might have made in our property.

### IX.—*Disinfection of Clothing.*

At the bhangies' platform for soiled clothes near the nálla—*vide* plan—were six half barrels, a drum of carbolic acid and a measure bottle. There was a tap here with a zinc gutter to carry the water to fill the barrels. Every morning the Camp Sanitary Inspector—a havildár of 19th Bombay Infantry—poured in a measure of carbolic acid into each half barrel of water. The soiled clothes were then plunged into these barrels, allowed to soak there several hours, were then lightly wrung out and plunged in plain water at another platform close by. Here they were wrung out to dry and were then taken charge of by the Dhobie to be finished.

### X.—*Disinfection and disposal of discharges.*

At each latrine were placed a half barrel of water, one dram of carbolic acid, one tin measure, one common bazaar pump. The Camp Inspector's daily duty was to see that each half barrel was duly prepared with the disinfectant. The Bhangi had orders to pour a pint measure of this solution into each privy pan after each cleansing. In this way the discharges were received into a vessel of disinfecting fluid. All the hospital discharges were buried in trenches seven feet deep beyond the nála that bounded the camp.

### XI.—*Disinfection of Persons.*

The supervision of this most important duty devolved on the Senior Hospital Assistant. After a soap and water bath in which the hair was well washed, a plentiful scour of weak carbolic lotion 1 in 100 was used taking care to work it well into the hair. New clothes from store or their own clothes previously disinfected were given the people on their discharge.

### XII.—*Disposal of the dead.*

When the hospital was started it was the custom to place dead bodies in a permanent bath and send them in a closed box to the burial and burning ground below Fitzgerald Bridge. This was not without offence and danger so I selected with Mr. Plunkett a burial and burning ground, so to speak, on the premises. The dead had to be no longer carried along public streets. They could be disposed of within a few paces from the camp. Thus the system was simplified, cheapened and rendered inoffensive. It worked well.

### XIII.—*Behaviour of the Hospital Establishment.*

When the hospital opened, Dr. Darabsett, a Pársi practitioner, was placed in charge with two hospital assistants under him. I understand that it was no easy matter in February to get a medical man for work like this. Panic was general and Native doctors showed little stomach for the fight. All the greater credit is due to this little doctor for coming forward. Being an outside practitioner he had not the same obligations that we



had to render loyal service to Government. He joined the hospital at a time when, though it is apt to be forgotten, every one, including doctors, thought that the work in a crowded plague hospital carried the greatest risks. With regard to the work done by those invaluable public servants, the hospital assistants, I cannot speak too highly of their untiring zeal, their kindness to the sick, their tact in dealing with an establishment like our *omnium gatherum*. Government rarely get to hear what splendid work is rendered in their service by these obscure men. If they could see them as I have done carrying in their arms plague sick in the last stages of delirium who had wandered from their cot, or who required changing, and doing this not by way of exception but as all in the work of the day they would realize what heroic qualities are exerted in silence during troublous times for the glory of Government by the men of subordinate medical establishment. When the ward boys came up in a body and refused to remove the dead from the wards to the dead house, because as they said, they would be known and ridiculed ever after as corpse-bearers, we brought them to their senses at once, and made them ashamed of themselves by saying we would remove the dead ourselves. Though this hospital is probably the largest ever known in the history of plague—at one time we had 235 sick—and the pressure on our small executive enormous they would have stood by me in removing the dead or doing any objectionable work rather than leave it undone. The spirit of the whole establishment was kept up to its work because nothing was asked of any one which the executive authorities were not ready to share into the full. The man who stood out a head and shoulders above everybody in every quality that can get work done and done with smoothness is Mr. Hari Madick, the Senior Hospital Assistant in charge. I am bringing his name up especially in a communication to the Surgeon-General with a hope that such a brave and loyal worker in the public service may not go unrewarded.

XIV.—*Mr. Plunkett.*

I cannot close this account without expressing my thanks to Mr. Plunkett for the loyal way he co-operated with me from the first day we met. All my supplies, all my servants were got through him and he never kept me waiting. The finances of the hospital which for me would have been the biggest anxiety of all he most kindly took off my hands. All the bills were counterchecked under his own eye. Everything was paid by him and I am glad to be able to say that all the business of this improvised establishment was conducted smoothly and I hope with satisfaction without a pice of public money passing through my hands. His advice was ever ready and sensible. His one idea was to get the work done. I do not think he cares a straw, who gets any praise. This makes it all the more necessary to let Government know how much of the credit of the work is due to Mr. Plunkett.

Notes on the purely medical aspect of the work, illustrated by photograph, will follow as soon as possible.

I have, &c.,

(Signed) J. P. BARRY, B.A., M.B., I. M. S.,  
Surgeon-Major,

(True copy)

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## Daily statement showing result of treatment of Plague and suspected Cases in General Plague Hospital, Poona.

SUSPECTED CASES.										PLAGUE CASES.							REMARK.
Month and Date.	Of those entered in column 4 the number who during the day under report				Total.	Number of fresh cases detained or admitted during day under report, excluding those shown in column 7.	Number of cases suspected as Plague during day under report as shown in column 7.	Balance of cases left over from previous day.	Total.	Of those entered in column 13 the number who during the day under report							
	Have died.	Have been found free from Plague and discharged.	Have been suffering from Plague.	Have been otherwise disposed of.						Balance remaining under observation at end of day under report.	Have died.	Have recovered and been discharged.	Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
5th February 1897.	...	...	...	...	...	...	...	...	4	...	18	22	4	...	...	18	
6th "	...	...	...	...	...	...	...	...	8	...	18	26	2	2	...	22	
7th "	...	...	...	...	...	...	...	...	5	...	22	27	2	...	...	25	
8th "	...	...	...	...	...	...	...	...	1	...	25	26	...	3	...	23	
9th "	...	...	...	...	...	...	...	...	4	...	23	27	2	1	...	24	
10th "	...	...	...	...	...	...	...	...	4	...	24	28	4	1	...	23	
11th "	...	...	...	...	...	...	...	...	4	...	23	27	1	3	...	23	
12th "	...	...	...	...	...	...	...	...	1	...	22	24	2	...	...	22	
13th "	...	...	...	...	...	...	...	...	6	...	22	28	...	...	...	22	
14th "	...	...	...	...	...	...	...	...	1	...	28	29	2	1	...	26	
15th "	...	...	...	...	...	...	...	...	3	...	26	29	3	...	...	26	
16th "	...	...	...	...	...	...	...	...	3	...	26	29	2	1	...	26	
17th "	...	...	...	...	...	...	...	...	2	...	26	28	3	...	...	25	
18th "	...	...	...	...	...	...	...	...	1	...	25	26	2	...	...	24	
19th "	...	...	...	...	...	...	...	...	2	...	24	26	1	...	...	25	
20th "	...	...	...	...	...	...	...	...	2	...	25	27	1	2	...	24	
21st "	...	...	...	...	...	...	...	...	3	...	24	27	2	...	...	23	
22nd "	...	...	...	...	...	...	...	...	1	...	23	24	...	...	...	24	
23rd "	...	...	...	...	...	...	...	...	4	...	24	28	1	1	...	26	
24th "	...	...	...	...	...	...	...	...	5	...	26	31	2	2	...	27	
25th "	...	...	...	...	...	...	...	...	5	...	27	32	3	2	...	27	
26th "	...	...	...	...	...	...	...	...	4	...	27	31	3	1	...	27	
27th "	...	...	...	...	...	...	...	...	7	...	27	34	1	5	...	28	
28th "	...	...	...	...	...	...	...	...	6	...	28	34	3	2	...	29	
1st March 1897	...	...	...	...	...	...	...	...	2	...	29	31	3	...	...	28	
2nd "	...	...	...	...	...	...	...	...	6	...	28	34	3	...	...	31	
3rd "	...	...	...	...	...	...	...	...	8	...	31	39	4	...	...	35	
4th "	...	...	...	...	...	...	...	...	5	...	35	40	3	1	...	36	
5th "	...	...	...	...	...	...	...	...	19	...	36	55	5	...	...	50	
6th "	...	...	...	...	...	...	...	...	9	...	50	59	6	1	...	52	
7th "	...	...	...	...	...	...	...	...	6	...	52	58	6	...	...	52	
8th "	...	...	...	...	...	...	...	...	17	...	52	69	7	...	...	62	

\* Appendix 19 is a Map (not printed).

Month and Date.	SUSPECTED CASES.								PLAQUE CASES.								REMARKS.
	Of those entered in column 4 the number who during the day under report								Of those entered in column 13 the number who during the day under report								
	Number of fresh cases detained or admitted during day under report.	Balance of cases left over from previous day.	Total.	Have died.	Have been found free from Plague and discharged.	Have been found to be suffering from Plague.	Have been otherwise disposed of.	Balance remaining under observation at end of day under report.	Number of fresh cases admitted during day under report, excluding those shown in column 7.	Number of suspected cases transferred as plague cases during day under report as shown in column 7.	Balance of cases left over from previous day.	Total.	Have died.	Have recovered and been discharged.	Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
9th March 1897	...	...	...	...	...	...	...	...	11	...	62	73	4	1	...	68	
10th "	...	...	...	...	...	...	...	...	19	...	68	87	15	2	...	70	
11th "	...	...	...	...	...	...	...	...	12	...	70	82	10	...	...	72	
12th "	...	...	...	...	...	...	...	...	6	...	72	78	4	...	...	74	
13th "	...	...	...	...	...	...	...	...	8	...	74	82	9	1	...	72	
14th "	...	...	...	...	...	...	...	...	25	...	72	97	4	5	...	88	
15th "	...	...	...	...	...	...	...	...	16	...	88	104	13	...	...	91	
16th "	...	...	...	...	...	...	...	...	31	...	91	122	19	2	...	101	
17th "	...	...	...	...	...	...	...	...	16	...	101	117	11	...	...	106	
18th "	...	...	...	...	...	...	...	...	25	...	106	131	14	1	...	116	
19th "	...	...	...	...	...	...	...	...	30	...	116	146	11	7	...	128	
20th "	...	...	...	...	...	...	...	...	22	...	128	150	15	5	...	130	
21st "	...	...	...	...	...	...	...	...	23	...	130	153	12	2	...	139	
22nd "	...	...	...	...	...	...	...	...	29	...	139	168	16	5	...	147	
23rd "	...	...	...	...	...	...	...	...	35	...	147	182	17	2	...	163	
24th "	...	...	...	...	...	...	...	...	22	...	163	185	15	2	...	168	
25th "	...	...	...	...	...	...	...	...	26	...	168	194	19	...	...	175	
26th "	...	...	...	...	...	...	...	...	33	...	175	208	16	6	...	186	
27th "	...	...	...	...	...	...	...	...	29	...	186	215	22	1	...	192	
28th "	...	...	...	...	...	...	...	...	23	...	192	215	17	...	...	198	
29th "	...	...	...	...	...	...	...	...	24	...	198	222	13	...	...	209	
30th "	6	3	6	...	3	...	...	3	30	...	209	239	17	16	...	206	
31st "	5	3	8	...	2	...	...	6	18	...	206	224	18	...	...	206	
1st April 1897	1	6	7	...	1	...	...	6	21	...	206	227	14	...	...	213	
2nd "	...	6	6	...	1	...	...	5	23	...	213	236	19	7	...	210	
3rd "	...	5	8	...	...	...	...	8	31	...	210	241	13	1	...	227	
4th "	...	8	8	...	...	...	...	...	26	...	227	253	12	11	...	230	
5th "	10	8	18	...	4	...	...	14	23	...	230	253	21	...	...	232	
6th "	3	14	17	...	5	...	...	12	27	...	232	259	15	15	...	229	
7th "	3	12	15	...	1	...	...	14	28	...	229	257	15	7	...	235	
8th "	3	14	17	...	6	...	...	10	24	...	235	259	17	10	...	232	
9th "	4	10	14	...	3	...	...	11	16	...	232	248	16	11	...	221	
10th "	8	11	19	...	3	...	...	14	23	2	221	246	15	15	...	216	
11th "	6	14	20	...	1	2	...	17	10	1	216	227	9	6	...	212	
12th "	11	17	28	...	...	2	...	26	10	2	212	224	16	...	...	208	
13th "	12	26	38	...	2	7	...	29	4	7	208	219	11	10	...	198	





## APPENDIX 21.

*Statement of men, women and children treated during the epidemic at the Poona General Plague Hospital from 5th February 1897 to 31st May 1897.*

				Admissions, Total Number.	Discharged cured.	Deaths, Total Number.	Remaining.	Observation cases admitted and discharged.	Remark.
Men	...	...	...	505	152	333	20	152	
Women	...	...	...	476	156	307	13	65	
Children	...	...	...	190	65	117	8	34	
Total	...	...	...	1,171	373	757	41	221	

## APPENDIX 22.

*Statement of Cases at the General Plague Hospital, Poona, from its establishment on 5th February 1897 to 31st May 1897, with Groups of Statistics.*

1				2				3				4				5				6	7	8	9			
Admissions, Total number.				Discharged recovered.				Remaining.				Deaths, Total number.				Deaths within.				Percentage of deaths shown in column 4 to total admissions in column 1.	Percentage of recoveries, column 2 to total admissions, column 1.	Percentage of recoveries to total admissions after deducting from columns 1 & 4 those who died within 48 hours.	Total cases with buboes.			
Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	24 hours.	36 hours.	48 hours.	Total deaths within 48 hours.				Neck.	Axilla.	Groin.	Total.
505	476	190	1,171	152	156	65	373	20	13	8	41	333	307	117	757	213	112	62	387	64.6	31.8	47.1	130	171	515	816

10	11	12	13	14	15	16	17	18	19	20		21					22	23	
Of 29 cases with multiple glands.		Percentage of bubo cases, to total admissions.	Total cases without buboes.	Percentage of non-bubo cases to total admissions.	Total deaths in bubo cases.	Total deaths in non-bubo cases.	Percentage of deaths to total admissions in bubo cases.	Percentage of deaths to total admissions in non-bubo cases.	Total number admitted from Segregation Camp and included in column 1.	Number of plague cases occurring in hospital.		Distribution of cases by caste.					Maximum period of incubation of plague discoverable from our records.	REMARK.	
Total recoveries.	Total deaths.									Among hospital establishment.	Attendants affected in hospital included in column 1.	Brahmins.	Mahomedans.	Parsees.	Christians.	Jews.			Other Hindus.
16	13	69.6	355	30.3	532	225	65.2	63.3	17	2	16	87	36	10	22	2	1,014	11 days	

*Columns 10 and 11.*—The presence of multiple glands does not appear to be significant of special risk.

*Column 20.*—The two men affected with plague, while borne on the hospital establishment were father and son, both low caste men—Mangs—engaged with the dead on the burning and burial grounds. But they came from a notoriously infected quarter—Mangwada. It is doubtful whether the hospital or their own house was the source of infection. They both died.

R. A. LAMB,  
Chairman, Poona Plague Committee

APPENDIX 23.  
GENERAL PLAGUE HOSPITAL.  
*Superior Establishment.*

Number.	Names.	Designation.	Date of arrival.	Date of departure.	Remarks.
1	2	3	4	5	6
1	J. P. Barry, Surgeon-Major ...	Supervisional Medical Officer ...	27th Feb. 1897...		
2	Bomanji B. Darabsett, L.R.L.P. (London)...	Medical Officer in charge ...	5th Feb. 1897 ...		
3	Hari Mahadik ...	1st Grade Hospital Assistant ...	8th Feb. 1897 ...		
4	Wahid Ally ...	2nd Grade Hospital Assistant ...	9th April 1897 ...		
5	Krishnaswami Mudliar ...	3rd Grade Hospital Assistant ...	8th Feb. 1897 ...		
6	K. Ranganayakehi Naidoo ...	Do. ...	9th April 1897...		
7	Manuel Banyan ...	Military Medical Pupil ...	20th March 1897.	4th June 1897.	
8	Shaik Abdul Karim ...	Do. ...	Do. ...	31st May 1897.	
9	Mohon Bhorday ...	Civil Medical Pupil ...	Do. ...	4th June 1897.	
10	Raoji Daji ...	Military Medical Pupil ...	Do. ...	5th April 1897.	
11	Shadikji Benjamin ...	Pensioned Hospital Assistant ...	5th Feb. 1897 ...	8th Feb. 1897.	
12	Samson Elliza ...	Do. ...	Do. ...	Do.	

APPENDIX 24.

*Strength of special Nursing Establishment for the General Plague Hospital, Poona.*

Names of Nurses.	Date of arrival.	Date of departure.	REMARK.
Miss Catherine McIntosh ...	18th April 1897.	Still employed ...	Since left.
Miss Franklin ...	19th April 1897.	22nd May 1897...	
Miss Kendall ...	Do. ...	29th May 1897 ...	

APPENDIX 25.

*List of Establishment employed at the General Plague Hospital, Poona, when the Epidemic was at its height.*

1	2	3	4	5		6			7	8	9		10		11
Supervisional Medical Officer.	Medical Officer in charge.	Military Hospital Assistants.	Medical Students.	Dispensary.		Clerks.			Conservancy Havildar from 19th Bombay Infantry.	Ward orderly.	Ward servants.		Peons.		Ramoshis.
				Compounders.	Dispensary servants.	Office clerks.	Ration clerks.	Store-keeper and his assistants.			Males.	Females.	Office peons.	Communication peons.	
1	1	4	4	1	2	2	1	2	1	1	14	18	2	2	3

12	13			14	15	16		17		18	20		19		21	22
Watchmen at tents.	Water Carriers.			Fire engine man.	Lamp lighters.	Cooks.		Dry sweepers.		Dhobies.	Cremation and burial establishment.		Mehters.		Female cow-dung sweepers.	Total.
	Bullock Bhisti.	Masak Bhisti.	Water-men.			Males.	Females.	Males.	Females.		Inspector.	Coolies.	Males.	Females.		
22	1	2	6	1	2	7	3	2	2	3	1	3	7	5	2	109

R. A. LAMB,  
Chairman, Poona Plague Committee.



## APPENDIX 26.

*Rules relating to the Poona General Plague Hospital.*

1. Every patients admitted is entitled to have a relative in constant attendance throughout the illness.
2. Every patient is entitled to receive from outside such food and comforts as may be sent him provided, in the case of food, that it is considered suited to the condition of the case.
3. The relative in attendance will be fed at his option by the hospital or with food sent in from outside.
4. Other relatives are entitled to present themselves at the shelter outside the hospital precincts by the main guard and may bring food for the patient and the attending relative subject to the proviso noted in Rule 2.
5. Two peons are specially engaged to act as means of communications between outside relatives and those in hospital to bring in permitted food, fruits, clothes, &c. The sentry has orders to see that the peons use reasonable despatch.
6. The relative in attendance is permitted to come to the neutral ground between the hospital and the outside shelter shed in order to pass in supply and to converse freely with and inform the visiting relatives of the patient's condition and wants.
7. Patients and their attendants should bring their wants to the notice of the Medical Officer in charge. There is free access for any one to Surgeon Major Barry during the morning and evening visits for complaints and suggestions.
8. The dead are disposed of by burial or cremation daily between 7 and 9 A.M. and 5 to 7 P.M. Relations are expected to keep in daily touch with their sick so as to be prepared to perform the funeral rites in case of a fatal issue. It is impossible for the hospital to send round to hunt up relations and inform them of a death.
9. No visitors to the hospital will be admitted except on passes granted by the Inspecting Medical Officer, Surgeon Major Barry.

R. A. LAMB,  
Chairman, Poona Plague Committee.

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APPENDIX 27.

Daily Statement showing result of treatment of Plague and Suspected Cases in the Mahomedan Hospital from March 8th to May 20th.

SUSPECTED CASES.						PLAQUE CASES.						REMARKS.					
Date.	Number of fresh cases detained or admitted during the day.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day under report				Number of fresh cases detained or admitted during day under report excluding those shown in column 7.	Number of suspected plague cases during day under report as shown in column 7.	Balance of cases left over from previous day.	Total.		Of those entered in column 13 the number who during the day under report				
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.						Balance remaining under observation at end of day under report.	Have died.	Have recovered and been discharged.	Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
8th March	...	...	...	...	...	...	...	...	8	...	...	8	...	...	...	8	
9th "	...	...	...	...	...	...	...	...	14	...	...	...	...	...	...	19	
10th "	...	...	...	...	...	...	...	...	5	...	19	22	...	...	...	22	
11th "	1	...	1	...	1	...	...	...	...	...	22	24	...	...	...	19	
12th "	...	...	...	...	...	...	...	...	6	...	19	25	...	...	...	21	
13th "	...	...	...	...	...	...	...	...	9	...	21	30	...	...	...	26	
14th "	...	...	...	...	...	...	...	...	11	...	26	37	...	...	...	34	
15th "	...	...	...	...	...	...	...	...	...	...	34	34	...	...	...	32	
16th "	...	...	...	...	...	...	...	...	6	...	32	38	...	...	...	29	
17th "	...	...	...	...	...	...	...	...	...	...	29	33	...	...	...	32	
18th "	...	...	...	...	...	...	...	...	4	...	32	35	...	...	...	23	
19th "	...	...	...	...	...	...	...	...	3	...	23	34	...	...	...	30	
20th "	...	...	...	...	...	...	...	...	11	...	30	34	...	...	...	31	
21st "	...	...	...	...	...	...	...	...	4	...	31	38	...	...	...	34	
22nd "	1	...	1	...	1	...	...	...	7	...	34	42	...	...	...	34	
23rd "	...	...	...	...	...	...	...	...	8	...	34	40	...	...	...	37	
24th "	...	...	...	...	...	...	...	...	6	...	37	43	...	...	...	39	
25th "	...	...	...	...	...	...	...	...	6	...	39	46	...	...	...	42	
26th "	...	...	...	...	...	...	...	...	7	...	42	52	...	...	...	45	
27th "	1	...	1	...	1	...	...	...	10	...	45	50	...	...	...	49	
28th "	...	...	...	...	...	...	...	...	5	...	49	54	...	...	...	47	
29th "	...	...	...	...	...	...	...	...	5	...	47	51	...	...	...	44	
30th "	...	...	...	...	...	...	...	...	4	...	44	48	...	...	...	43	
31st "	...	...	...	...	...	...	...	...	8	...	43	51	...	...	...	45	

SUSPECTED CASES.										PLAQUE CASES.						REMARKS.	
Date.	Of those entered in column 4 the number who during the day under report								Of those entered in column 13 the number who during the day under report								
	Number of fresh cases detained or admitted during the day.	Balance of cases left over from previous day.	Total.	Have died.	Have been free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.	Balance remaining under observation at end of day under report.	Number of fresh cases detained or admitted during day under report excluding those shown in column 7.	Number of cases transferred as plague cases during day under report as shown in column 7.	Balance of cases left over from previous day.	Total.	Have died.	Have covered and been otherwise discharged.	Balance remaining under treatment at end of day under report.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1st April	...	...	...	...	...	...	...	...	3	...	45	48	1	...	...	47	
2nd "	...	...	...	...	...	...	...	...	6	...	47	53	1	...	...	52	
3rd "	...	...	...	...	...	...	...	...	13	...	52	65	3	1	...	61	
4th "	...	...	...	...	...	...	...	...	9	...	61	70	6	1	...	61	
5th "	...	...	...	...	...	...	...	...	10	...	61	71	6	8	...	57	
6th "	...	...	...	...	...	...	...	...	4	...	57	61	5	...	...	56	
7th "	...	...	...	...	...	...	...	...	8	...	56	64	4	1	...	59	
8th "	...	...	...	...	1	...	...	...	8	...	59	67	13	...	...	54	
9th "	...	...	...	...	...	...	...	...	11	...	54	65	3	...	...	62	
10th "	...	...	...	...	...	...	...	...	8	...	62	70	1	2	...	67	
11th "	...	...	...	...	...	...	...	...	5	...	67	72	2	...	...	69	
12th "	...	...	...	...	...	...	...	...	8	...	69	77	2	...	...	68	
13th "	...	...	...	...	...	...	...	...	3	...	68	71	1	5	...	65	
14th "	...	...	...	...	...	...	...	...	8	...	65	73	1	2	...	70	
15th "	...	...	...	...	...	...	...	...	3	...	70	73	8	2	...	63	
16th "	...	...	...	...	...	...	...	...	3	...	63	66	3	2	...	61	
17th "	...	...	...	...	...	...	...	...	6	...	61	67	2	...	...	65	
18th "	...	...	...	...	...	...	...	...	2	...	65	67	2	3	...	62	
19th "	...	...	...	...	...	...	...	...	3	...	62	65	6	6	...	53	
20th "	...	...	...	...	...	...	...	...	4	...	53	57	1	3	...	53	
21st "	...	...	...	...	...	...	...	...	5	...	53	58	3	2	...	53	
22nd "	...	...	...	...	...	...	...	...	3	...	53	56	...	...	...	56	
23rd "	...	...	...	...	...	...	...	...	2	...	56	58	...	1	...	57	
24th "	...	...	...	...	...	...	...	...	1	...	57	58	...	1	...	57	
25th "	...	...	...	...	...	...	...	...	2	...	57	59	...	...	...	59	
26th "	...	...	...	...	...	...	...	...	1	...	59	60	2	11	...	47	
27th "	...	...	...	...	...	...	...	...	2	...	47	49	...	...	...	49	







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APPENDIX 29.

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## APPENDIX 29.

*Daily Statement showing Result of Treatment of Plague and suspected Cases in Hindu Plague Hospital, Poona, from the 15th March 1897 to 31st May 1897.*

Month and Date.	SUSPECTED CASES.								PLAGUE CASES.								REMARKS.
	Number of fresh cases de- tained or admitted during day under report.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day under report				Number of fresh cases detained during day under report excluding those shown in column 7.	Number of suspected cases trans- ferred as plague cases during day under report as shown in column 7.	Balance of cases left over from previous day.	Total.	Of those entered in column 13 the number who during the day under report					
				Have died.	Have been free from plague and dis- charged.	Have been found to be suffering from plague.	Have been otherwise disposed of.					Balance remain- ing un- der ob- servation at end of day.	Have recovered and been otherwise discharg- ed.	Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
15th March	..	...	...	...	...	...	...	...	18	...	...	18	3	...	...	15	
16th "	...	...	...	...	...	...	...	...	12	...	15	27	7	...	...	20	
17th "	...	...	...	...	...	...	...	...	10	...	20	30	8	...	...	22	
18th "	...	...	...	...	...	...	...	...	4	...	22	26	6	...	...	20	
19th "	...	...	...	...	...	...	...	...	3	...	20	23	1	...	...	22	
20th "	...	...	...	...	...	...	...	...	5	...	22	27	5	...	...	22	
21st "	...	...	...	...	...	...	...	...	3	...	22	25	6	...	...	19	
22nd "	...	...	...	...	...	...	...	...	3	...	19	22	3	...	...	19	
23rd "	...	...	...	...	...	...	...	...	6	...	19	25	4	...	...	21	
24th "	...	...	...	...	...	...	...	...	5	...	21	26	1	...	...	25	
25th "	...	...	...	...	...	...	...	...	9	...	25	34	5	...	...	29	
26th "	...	...	...	...	...	...	...	...	3	...	29	32	2	...	1	29	
27th "	...	...	...	...	...	...	...	...	1	...	29	30	8	...	...	22	
28th "	...	...	...	...	...	...	...	...	3	...	22	25	1	...	...	24	
29th "	...	...	...	...	...	...	...	...	5	...	24	29	4	...	...	25	
30th "	...	...	...	...	...	...	...	...	1	...	25	26	3	...	...	23	
31st "	1	...	1	...	...	...	...	1	3	...	23	26	4	1	...	21	
1st April	1	1	2	...	...	...	...	2	2	...	21	23	2	...	...	21	
2nd "	...	2	2	...	1	...	...	1	4	...	21	25	...	2	...	23	



APPENDIX 29 — continued.

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Month and Date.	SUSPECTED CASES.					PLAGUE CASES.												REMARKS.
	Number of fresh cases detained or admitted during day under report.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day under report				Number of fresh cases detained during day excluding those shown as in column 7.	Number of suspected cases transferred as plague cases during day under report.	Balance of cases left over from previous day.	Total.	Of those entered in column 13 the number who during the day under report						
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.					Balance remaining under observation at end of day under report.	Have recovered and been discharged.	Have been otherwise disposed of.	Balance remaining under treatment at end of day under report.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
17th May	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
18th "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
19th "	...	...	...	...	...	...	...	...	1	...	9	10	...	...	...	10		
20th "	...	...	...	...	...	...	...	...	...	...	10	10	1	...	...	9		
21st "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
22nd "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
23rd "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
24th "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
25th "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	9		
26th "	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	6		
27th "	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...	6		
28th "	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...	6		
29th "	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...	6		
30th "	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...	6		
31st "	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...	4		

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.



## APPENDIX 30.

*Statement of Men, Women and Children treated during the Epidemic at the Hindu Plague Hospital up to May 31st (inclusive).*

		Number admitted as plague cases.	Discharged recovered.	Deaths.	Remaining on May 31st (inclu- sive).	Observation cases admitted.	Remarks.
Men ...	...	70	18	50	2	3	
Women ...	...	69	15	53	1	3	
Children ...	...	18	4	13	1	1	
Total ...		157	37	116	4	7*	*6 were found free from plague and discharged and one was admitted as a plague case.

## APPENDIX 31.

*Statement of Plague Cases in the Hindu Plague Hospital, Poona, from its establishment on 15th March 1897 to 31st May 1897.*

1				2				3				4				5				6	7	8	9			
Admissions— Total number (True plague cases).				Discharged recovered.				Remaining.				Deaths—Total number.				Deaths within				Percentage of deaths shown in column 4 to total admission column 1.	Percentage of recoveries, column 2 to total admissions, column 1.	Percentage of recoveries to total admissions after deducting from columns 1 and 4 those died within 48 hours.	Total cases with Buboes.			
Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	24 hours.	36 hours.	48 hours.	Total deaths under 48 hours.				Neck.	Arilla.	Groin.	Total.
70	69	18	157	18	15	4	37	2	1	1	4	50	53	13	116	34	19	14	67	73.8	23.5	41.1	11	23	71	105

10		11	12	13	14	15	16	17	18	19		20		21	22										
Of 6 Cases with multiple glands.		Percentage of bubo cases to total admissions.		Total cases without buboes.		Percentage of non-bubo cases to total admissions.		Total deaths in bubo cases.		Total deaths in non-bubo cases.		Percentage of deaths to total admissions in bubo cases.		Percentage of deaths to total admissions in non-bubo cases.		Total number admitted from segregation camp, and in- cluded in column 1.		Number of Plague cases occurring in Hospital.		Distribution of cases by caste.		Maximum period of incubation of plague discoverable from our records.		Remarks.	
Total recoveries.	Total deaths.									Among Hospital establishment.	Attendants affected in Hospital and shown in column 1.	Brahmins.	Other Hindus.												
...	6	6.68	52	33.1	71	45	67.5	86.5	2	...	2	98	59	4 days.											

Column 20.—Of the two persons attacked with plague in Hospital, one was the mother of the patient. The other a paid servant. They had each been only a day in Hospital. Neither had buboes. Both died.

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 33.

*Daily Statement showing how persons admitted into the General Segregation Camp  
were disposed of from the 13th March till 20th May 1897.*

Date and Month.	Number of Persons de- tained or admitted during the day.	Balance of cases left over from the pre- vious day.	Total.	Have died.	Have been found free from Plague and dis- charged.	Have found to be suffer- ing from Plague.	Have been otherwise disposed of.	Balance remaining under observation at the end of day.
1897.								
13th March ...	9	5	14	1	...	...	...	13
14th " ...	...	13	13	...	3	...	...	10
15th " ...	45	10	55	1	...	...	2	52
16th " ...	6	52	58	...	...	1	3	54
17th " ...	53	54	107	...	...	...	...	107
18th " ...	58	107	165	...	...	...	...	165
19th " ...	18	165	183	...	...	...	...	183
20th " ...	44	183	227	...	1	1	...	225
21st " ...	20	225	245	...	...	...	...	245
22nd " ...	78	245	323	1	...	2	1	319
23rd " ...	62	319	381	...	9	1	...	371
24th " ...	86	371	457	1	...	...	...	456
25th " ...	73	456	529	...	38	...	...	491
26th " ...	56	491	547	...	6	...	1	540
27th " ...	113	540	653	...	56	3	...	594
28th " ...	14	594	608	1	54	...	1	552
29th " ...	76	552	628	...	22	2	1	603
30th " ...	79	603	682	2	43	...	...	637
31st " ...	70	637	707	1	20	2	...	684
1st April ...	28	684	712	...	67	1	1	643
2nd " ...	69	643	712	...	62	1	1	648
3rd " ...	57	648	705	...	80	...	...	625
4th " ...	4	625	629	...	70	2	...	557
5th " ...	46	557	603	2	47	1	5	548
6th " ...	48	548	596	...	109	...	12	475
7th " ...	29	475	504	...	10	1	17	476
8th " ...	55	476	531	...	72	...	...	459
9th " ...	83	459	542	...	79	1	5	457
10th " ...	32	457	489	...	71	...	12	406
11th " ...	3	406	409	...	26	3	...	380
12th " ...	62	380	442	...	67	2	1	372
13th " ...	50	372	422	...	58	...	1	363
14th " ...	44	363	407	...	2	3	2	400
15th " ...	48	400	448	1	43	1	2	401
16th " ...	161	401	562	...	16	1	...	545
17th " ...	111	545	656	...	25	...	...	631
18th " ...	2	631	633	...	50	1	...	582
19th " ...	75	582	657	...	77	2	1	577
20th " ...	112	577	689	...	32	...	29	628
21st " ...	79	628	707	...	3	...	8	696
22nd " ...	73	696	769	...	57	...	3	709
23rd " ...	73	709	782	...	88	2	1	691
24th " ...	23	691	714	...	44	...	2	668
25th " ...	8	668	676	...	48	...	13	615
26th " ...	46	615	661	...	124	...	2	535
27th " ...	55	535	590	...	78	...	1	511
28th " ...	35	511	546	...	2	...	5	539
29th " ...	87	539	626	...	73	...	4	549
30th " ...	28	549	577	...	107	...	10	460
1st May ...	20	460	480	...	76	...	1	403
2nd " ...	5	403	408	...	52	...	21	335
3rd " ...	41	335	376	...	71	...	...	305
4th " ...	22	305	327	...	11	...	15	301
5th " ...	94	301	395	...	18	...	2	375
6th " ...	11	375	386	...	40	...	19	327
7th " ...	18	327	345	...	48	1	8	288

## APPENDIX 33—continued.

Date and month.	Number of persons detained or admitted during the day.	Balance of cases left over from the previous day.	Total.	Have died.	Have been found free from plague and discharged.	Have found to be suffering from plague.	Have been otherwise disposed of.	Balance remaining under observation at the end of day.
1897.								
8th May ...	20	288	308	...	13	...	...	295
9th " ...	77	295	372	...	76	...	...	296
10th " ...	17	296	313	...	34	...	14	265
11th " ...	14	265	279	...	3	...	5	271
12th " ...	6	271	277	...	6	...	21	250
13th " ...	6	250	256	...	33	...	...	223
14th " ...	5	223	228	...	22	...	...	206
15th " ...	35	206	241	1	51	...	...	189
16th " ...	64	189	253	...	11	1	3	238
17th " ...	7	238	245	...	18	...	...	227
18th " ...	11	227	238	...	6	...	2	230
19th " ...	18	230	248	...	77	...	...	171
20th " ...	...	171	171	...	10	...	...	161

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 34.

## RULES FOR THE POONA SEGREGATION CAMP.

- Persons ordered to be segregated will be detained in the segregation camp for 10 days. They should bring with them money, clothing, bedding, cooking pots and other necessities.
- On the arrival of segregated persons at the camp they will be required to bathe at once and their clothing and bedding will be disinfected.
- Arrangements are made in the camp for the sale of food and fuel to the inmates. Segregated persons belonging to the labouring classes receive an allowance of two annas per diem to enable them to purchase food and fuel. Segregated persons belonging to classes above the labouring class will ordinarily receive no allowance, but the Inspecting Medical Officer may order a daily allowance to be paid in any case in which he sees sufficient reason for doing so.
- Segregated persons will ordinarily cook their own food, but if they are unable to do so it will, if they so desire, be cooked for them by the cook attached to the camp.
- All persons in the segregation camp will be inspected daily by a Medical Officer.
- All persons in the camp are forbidden to obey a call of nature except at a latrine.
- No fires may be lighted and no matches may be struck in any of the sheds. Smoking in the camp is prohibited.
- The public may send to the segregation camp food, clothing, bedding and other necessities for the use of segregated persons. All such property will be handed in across the barrier.
- Except the segregated persons, members of the Plague Committee and persons employed on the business of the camp under the authority of the Plague Committee nobody will be admitted to the camp except on a pass signed by the Inspecting Medical Officer.
- Application for passes should be made to Surgeon-Captain Beveridge. Persons who have received passes may on showing their passes to the guard visit the camp whenever they wish between sunrise and sunset.
- Persons who enter the camp under a pass are prohibited from issuing orders to any person employed on the business of the camp. They are also prohibited from making complaints to any one employed on the business of the camp other than the Inspecting Medical Officer.

W. C. RAND,  
Chairman, Poona Plague Committee.

B 1218—11



## APPENDIX 35.

*Daily Statement showing how Persons admitted to the Mahomedan Segregation Camp were disposed of.*

Date.	ADMISSIONS.							
	Number of fresh cases detained or admitted during day.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day				
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.	Balance remaining under observation at end of day.
1	2	3	4	5	6	7	8	9
15th March 1897 ...	4	...	4	...	...	...	...	4
16th " ...	...	4	4	...	...	...	...	4
17th " ...	...	4	4	...	...	...	...	4
18th " ...	24	4	28	...	...	...	...	28
19th " ...	1	28	29	...	...	...	...	29
20th " ...	2	29	31	...	...	...	...	31
21st " ...	5	31	36	...	...	...	...	36
22nd " ...	7	36	43	...	...	1	...	42
23rd " ...	9	42	51	...	...	...	...	51
24th " ...	6	51	57	...	...	...	...	57
25th " ...	5	57	62	...	4	...	...	58
26th " ...	2	58	60	...	...	...	...	60
27th " ...	5	60	65	...	...	...	...	65
28th " ...	1	65	66	...	24	...	...	42
29th " ...	7	42	49	...	1	...	...	48
30th " ...	5	48	53	...	2	...	...	51
31st " ...	17	51	68	...	5	...	...	63
1st April 1897 ...	2	63	65	...	6	...	...	59
2nd " ...	4	59	63	...	9	...	...	54
3rd " ...	23	54	77	...	6	...	...	71
4th " ...	12	71	83	...	5	...	...	78
5th " ...	15	78	93	...	2	...	...	91
6th " ...	11	91	102	...	5	...	...	97
7th " ...	19	97	116	...	1	...	...	115
8th " ...	31	115	146	...	7	...	...	139
9th " ...	7	139	146	...	14	1	...	131
10th " ...	...	131	131	...	66	...	...	65
11th " ...	10	65	75	...	...	...	...	75
12th " ...	9	75	84	...	16	...	...	68
13th " ...	36	68	104	...	6	...	...	98
14th " ...	13	98	111	...	2	...	...	109
15th " ...	4	109	113	...	16	...	...	97
16th " ...	6	97	103	...	5	...	45	53
17th " ...	...	53	53	...	1	...	...	52
18th " ...	...	52	52	...	26	...	...	26
19th " ...	...	26	26	...	1	...	...	25
20th " ...	...	25	25	...	...	...	...	25
21st " ...	...	25	25	...	15	...	...	10
22nd " ...	...	10	10	...	10	...	...	...

## APPENDIX 36.

*Daily Statement showing how Persons admitted to the Cantonment Segregation Camp were disposed of.*

Date.	ADMISSIONS.							
	Number of fresh cases detained or admitted during day.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day				
				Have died.	Have been found free from plague and discharged	Have been found to be suffering from plague.	Have been otherwise disposed of.	Balance remaining under observation at end of day.
1	2	3	4	5	6	7	8	9
24th February 1897	...	7	...	7	...	...	...	7
25th	...	23	...	30	...	...	...	30
26th	...	...	30	30	...	...	...	30
27th	...	...	30	30	...	...	...	30
28th	...	...	30	30	...	30	...	...
1st March 1897	...	...	...	...	...	...	...	...
2nd	...	...	...	...	...	...	...	...
3rd	...	10	...	10	...	...	...	10
4th	...	9	10	19	...	...	10	9
5th	...	...	9	9	...	...	...	9
6th	...	10	9	19	...	...	...	39
7th	...	4	19	23	...	...	...	21
8th	...	39	23	62	...	10	...	53
9th	...	8	52	60	...	39	1	22
10th	...	22	20	42	...	...	...	40
11th	...	2	42	44	...	...	...	42
12th	...	...	44	44	...	22	...	22
13th	...	...	22	22	...	...	...	22
14th	...	...	22	22	...	...	...	22
15th	...	6	22	28	...	...	...	28
16th	...	5	28	33	...	...	...	33
17th	...	...	33	33	...	...	...	34
18th	...	7	33	40	...	...	...	40
19th	...	20	40	60	...	9	...	51
20th	...	...	51	51	...	...	...	51
21st	...	8	51	59	...	...	...	59
22nd	...	...	59	59	...	17	...	42
23rd	...	...	42	42	...	...	...	42
24th	...	28	42	70	...	10	...	60
25th	...	...	60	60	...	...	...	60
26th	...	9	60	69	...	...	...	69
27th	...	...	69	69	...	28	...	41
28th	...	10	41	51	...	...	...	51
29th	...	27	51	78	...	...	...	78
30th	...	3	78	81	...	...	...	81
31st	...	...	81	81	...	...	...	81
1st April 1897	...	11	81	92	...	35	...	57
2nd	...	32	57	89	...	...	...	89
3rd	...	2	89	91	...	...	1	90
4th	...	13	90	103	...	30	...	73
5th	...	...	73	73	...	...	1	72
6th	...	29	72	101	...	...	2	99
7th	...	...	99	99	...	...	...	99
8th	...	...	99	99	...	10	...	89
9th	...	19	89	108	...	...	...	108
10th	...	2	108	110	...	32	...	78
11th	...	13	78	91	...	...	...	91

## APPENDIX 36--continued.

Date.	ADMISSIONS.							
	Number of fresh cases detained or admitted during day.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day				
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.	Balance remaining under observation at end of day.
1	2	3	4	5	6	7	8	9
12th April 1897 ...	3	91	94	...	12	...	...	82
13th " ...	2	82	84	...	...	...	...	84
14th " ...	22	84	106	...	21	...	...	85
15th " ...	20	85	105	...	...	...	...	105
16th " ...	9	105	114	...	...	...	...	114
17th " ...	6	11	120	...	18	...	...	102
18th " ...	8	102	110	...	...	...	...	110
19th " ...	9	110	119	...	...	...	...	119
20th " ...	15	119	134	...	22	...	...	112
21st " ...	...	112	112	...	...	...	...	112
22nd " ...	...	112	112	...	...	...	...	112
23rd " ...	27	112	139	...	30	...	...	109
24th " ...	...	109	109	...	...	...	...	109
25th " ...	...	109	109	...	...	...	...	109
26th " ...	21	109	130	...	14	...	9	107
27th " ...	6	107	113	...	21	...	...	92
28th " ...	...	92	92	...	...	...	2	90
29th " ...	40	90	130	...	...	...	...	130
30th " ...	...	130	130	...	...	...	...	130
1st May 1897 ...	12	130	142	...	6	...	...	136
2nd " ...	...	136	136	...	...	...	...	136
3rd " ...	6	136	142	...	...	...	...	142
4th " ...	18	142	160	...	21	...	...	139
5th " ...	13	139	152	...	6	...	...	146
6th " ...	...	146	146	...	...	...	...	146
7th " ...	...	146	146	...	34	...	...	112
8th " ...	...	112	112	...	20	...	...	92
9th " ...	17	92	109	...	...	...	...	109
10th " ...	...	109	109	...	...	...	5	104
11th " ...	6	104	110	...	15	...	...	95
12th " ...	...	95	95	...	8	...	...	87
13th " ...	2	87	89	...	...	1	...	88
14th " ...	7	88	95	...	17	...	...	78
15th " ...	...	78	78	...	...	...	...	78
16th " ...	...	78	78	...	13	...	...	65
17th " ...	6	65	71	...	14	...	...	57
18th " ...	6	57	63	...	10	...	...	53
19th " ...	...	53	53	...	18	...	...	35
20th " ...	...	35	35	...	9	...	...	26



## APPENDIX 37.

*Daily Statement showing how persons admitted to the Pársi Segregation Camp were disposed of from commencement of outbreak to May 20th.*

Date.	ADMISSIONS.							
	Number of fresh cases detained or admitted during day.	Balance of cases left over from previous day.	Total.	Of those entered in column 4 the number who during the day				
				Have died.	Have been found free from plague and discharged.	Have been found to be suffering from plague.	Have been otherwise disposed of.	Balance remaining under observation at end of day.
1	2	3	4	5	6	7	8	9
27th March 1897 ...	4	...	4	...	...	...	...	4
28th " ...	...	4	4	...	...	...	...	4
29th " ...	3	4	7	...	...	...	...	7
30th " ...	...	7	7	...	...	...	...	7
31st " ...	...	7	7	...	...	...	...	7
1st April 1897 ...	...	7	7	...	...	...	...	7
2nd " ...	...	7	7	...	...	...	...	7
3rd " ...	...	7	7	...	...	...	...	7
4th " ...	...	7	7	...	...	...	...	7
5th " ...	...	7	7	...	...	...	...	7
6th " ...	...	7	7	...	4	...	...	3
7th " ...	...	3	3	...	...	...	...	3
8th " ...	...	3	3	...	3	...	...	...
9th " ...	...	...	...	...	...	...	...	...
10th " ...	...	...	...	...	...	...	...	...
11th " ...	...	...	...	...	...	...	...	...
12th " ...	...	...	...	...	...	...	...	...
13th " ...	...	...	...	...	...	...	...	...
14th " ...	...	...	...	...	...	...	...	...
15th " ...	...	...	...	...	...	...	...	...
16th " ...	...	...	...	...	...	...	...	...
17th " ...	...	...	...	...	...	...	...	...
18th " ...	...	...	...	...	...	...	...	...
19th " ...	...	...	...	...	...	...	...	...
20th " ...	...	...	...	...	...	...	...	...
21st " ...	...	...	...	...	...	...	...	...
22nd " ...	...	...	...	...	...	...	...	...
23rd " ...	3	...	3	...	...	...	...	3
24th " ...	...	3	3	...	...	...	...	3
25th " ...	...	3	3	...	...	...	...	3
26th " ...	...	3	3	...	...	...	...	3
27th " ...	...	3	3	...	...	...	...	3
28th " ...	...	3	3	...	...	...	...	3
29th " ...	...	3	3	...	...	...	...	3
30th " ...	8	3	11	...	...	...	...	11
1st May 1897 ...	...	11	11	...	...	...	...	11
2nd " ...	...	11	11	...	...	...	...	11
3rd " ...	...	11	11	...	3	...	...	8
4th " ...	...	8	8	...	...	...	...	8
5th " ...	...	8	8	...	...	...	...	8
6th " ...	...	8	8	...	...	...	...	8
7th " ...	...	8	8	...	...	...	...	8
8th " ...	...	8	8	...	...	...	...	8
9th " ...	...	8	8	...	...	...	...	8
10th " ...	...	8	8	...	8	...	...	...
11th " ...	...	...	...	...	...	...	...	...
12th " ...	...	...	...	...	...	...	...	...
13th " ...	...	...	...	...	...	...	...	...
14th " ...	...	...	...	...	...	...	...	...
15th " ...	...	...	...	...	...	...	...	...
16th " ...	...	...	...	...	...	...	...	...
17th " ...	2	...	2	...	...	...	...	2
18th " ...	...	2	2	...	...	...	...	2
19th " ...	...	2	2	...	...	...	...	2
20th " ...	...	2	2	...	...	...	...	2

## APPENDIX 38.

*Statement of Daily Plague Attacks, Plague Deaths and Total Mortality in Poona City from 1st December 1896 to 20th May 1897.*

Date.	PLAGUE ATTACKS.			Plague deaths.	Total mortality.	Remarks.
	Imported.	Local.	Total.			
1st December 1896	...	...	...	...	...	
2nd "	...	...	...	...	9	
3rd "	...	...	...	...	13	
4th "	...	...	...	...	8	
5th "	...	...	...	...	6	
6th "	...	...	...	...	...	
7th "	...	...	...	...	5	
8th "	...	...	...	...	7	
9th "	...	...	...	...	3	
10th "	...	...	...	...	8	
11th "	...	...	...	...	4	
12th "	...	...	...	...	7	
13th "	...	...	...	...	...	
14th "	...	...	...	...	8	
15th "	...	...	...	...	17	
16th "	...	...	...	...	15	
17th "	...	...	...	...	4	
18th "	...	...	...	...	9	
19th "	1	...	1	...	8	Imported from Bombay.
20th "	...	...	...	...	...	
21st "	...	...	...	...	21	
22nd "	...	...	...	1	15	
23rd "	...	...	...	...	29	
24th "	...	...	...	...	...	
25th "	...	...	...	...	8	
26th "	...	...	...	...	14	
27th "	1	...	1	...	...	
28th "	...	...	...	...	7	Do.
29th "	...	...	...	1	5	
30th "	...	2	2	2	2	
31st "	...	...	...	...	38	
Total	2	2	4	4	270	
1st January 1897	1	...	1	1	1	Imported from Bombay.
2nd "	...	...	...	...	...	
3rd "	...	...	...	...	...	
4th "	1	...	1	1	17	Do.
5th "	...	...	...	...	9	
6th "	...	...	...	...	13	
7th "	1	...	1	...	25	Do.
8th "	2	2	4	3	4	Do.
9th "	...	2	2	2	18	
10th "	2	1	3	3	3	Do.
11th "	1	1	2	1	12	Imported from Bhiwandi.
12th "	...	2	2	2	2	
13th "	...	...	...	...	18	
14th "	...	4	4	1	25	
15th "	1	...	1	3	8	Imported from Bombay.
16th "	...	3	3	3	15	
17th "	1	3	4	5	5	Do.
18th "	...	...	...	...	32	
19th "	...	3	3	3	12	
20th "	...	2	2	2	37	
21st "	...	2	2	2	17	
22nd "	1	5	6	5	14	Do.
23rd "	1	4	5	4	18	Do.
24th "	...	5	5	4	4	
25th "	2	8	10	11	34	Do.
26th "	...	6	6	7	19	
27th "	...	5	5	5	47	
28th "	...	8	8	8	16	
29th "	2	5	7	7	19	One from Bombay and one from Ahmedabad.
30th "	1	8	9	7	11	Imported from Bombay.
31st "	1	4	5	5	42	Do.
Total	18	83	101	95	497	

## APPENDIX 38—continued.

Date.	PLAGUE ATTACK.			Plague deaths.	Total mortality.	Remarks.
	Imported.	Local.	Total.			
1st February 1897 .	...	6	6	6	15	From Bombay. 1 from Bombay, 1 from Sátara, 1 from Blav- nagar.
2nd       "       ...	1	6	7	8	25	
3rd       "       ...	3	5	8	8	17	
4th       "       ...	...	9	9	9	27	From Bombay.
5th       "       ...	1	6	7	7	36	
6th       "       ...	...	9	9	5	25	
7th       "       ...	...	4	4	4	23	
8th       "       ...	...	7	7	7	29	
9th       "       ...	...	7	7	7	30	
10th      "       ...	...	5	5	5	29	
11th      "       ...	...	4	4	4	29	
12th      "       ...	...	5	5	3	36	
13th      "       ...	...	5	5	3	21	
14th      "       ...	...	4	4	4	47	
15th      "       ...	...	3	3	2	30	
16th      "       ...	...	8	8	8	29	
17th      "       ...	...	6	6	6	36	
18th      "       ...	...	4	4	3	29	
19th      "       ...	...	4	4	3	40	
20th      "       ...	...	8	8	6	32	From Limbgaon.
21st      "       ...	1	6	7	7	45	
22nd      "       ...	...	4	4	3	51	
23rd      "       ...	...	15	15	12	40	From Bombay.
24th      "       ...	...	12	12	9	51	
25th      "       ...	1	14	15	12	55	
26th      "       ...	...	13	13	10	43	
27th      "       ...	...	9	9	6	57	
28th      "       ...	...	8	8	5	70	
Total    ...	7	196	203	172	1,009	
1st March 1897 ..	...	13	13	11	60	From Thána.
2nd       "       ...	...	14	14	8	64	
3rd       "       ...	...	28	28	26	57	
4th       "       ...	...	36	36	23	69	
5th       "       ...	...	19	19	26	66	
6th       "       ...	...	27	27	16	45	
7th       "       ...	1	15	16	7	33	
8th       "       ...	...	18	18	20	59	
9th       "       ...	...	28	28	24	77	
10th      "       ...	...	47	47	41	82	
11th      "       ...	...	31	31	26	69	
12th      "       ...	...	17	17	14	54	
13th      "       ...	...	33	33	12	38	
14th      "       ...	...	45	45	22	62	
15th      "       ...	...	38	38	21	50	
16th      "       ...	...	28	28	22	37	
17th      "       ...	...	64	64	31	48	
18th      "       ...	...	59	59	33	54	
19th      "       ...	...	48	48	37	50	
20th      "       ...	...	36	36	23	55	
21st      "       ...	...	54	54	30	43	
22nd      "       ...	...	54	54	41	65	
23rd      "       ...	...	43	43	20	43	
24th      "       ...	...	36	36	28	58	
25th      "       ...	...	42	42	35	52	
26th      "       ...	...	54	54	28	45	
27th      "       ...	...	30	30	25	46	
28th      "       ...	...	44	44	33	44	
29th      "       ...	...	29	29	19	39	
30th      "       ...	...	35	35	24	42	
31st      "       ...	...	32	32	30	47	
Total    ...	1	1,097	1,098	756	1,656	



APPENDIX 38—*continued.*

Date.	PLAGUE ATTACKS.			Plague deaths.	Total mortality.	Remarks.
	Imported.	Local.	Total.			
1st April 1897 ...	...	41	41	24	43	
2nd " ...	...	27	27	22	36	
3rd " ...	...	42	42	16	29	
4th " ...	...	41	41	20	24	
5th " ...	...	23	23	23	32	
6th " ...	...	29	29	18	32	
7th " ...	...	48	48	19	36	
8th " ...	...	25	25	33	43	
9th " ...	...	28	28	20	23	
10th " ...	...	33	33	23	30	
11th " ...	...	18	18	11	26	
12th " ...	1	21	22	17	20	From Nasrapur.
13th " ...	...	18	18	14	22	
14th " ...	...	21	21	11	19	
15th " ...	...	19	19	21	29	
16th " ...	...	13	13	10	21	
17th " ...	...	17	17	22	27	
18th " ...	...	14	14	8	18	
19th " ...	...	13	13	13	15	
20th " ...	...	11	11	5	9	
21st " ...	...	13	13	8	9	
22nd " ...	...	13	13	8	12	
23rd " ...	...	10	10	6	11	
24th " ...	...	10	10	6	10	
25th " ...	1	7	8	13	23	
26th " ...	...	2	2	5	9	From Hadapsar.
27th " ...	...	6	6	3	6	
28th " ...	...	12	12	8	12	
29th " ...	...	12	12	4	7	
30th " ...	1	3	4	5	10	From Bombay.
Total ...	3	590	593	416	643	
1st May 1897 ...	...	5	5	3	8	
2nd " ...	...	6	6	3	5	
3rd " ...	...	3	3	3	9	
4th " ...	...	3	3	2	6	
5th " ...	...	5	5	2	8	
6th " ...	...	1	1	2	5	
7th " ...	...	3	3	2	4	
8th " ...	...	...	...	2	6	
9th " ...	...	3	3	2	5	
10th " ...	...	...	...	1	3	
11th " ...	...	2	2	4	7	
12th " ...	...	...	...	1	4	
13th " ...	...	5	5	1	2	
14th " ...	...	2	2	1	6	
15th " ...	1	2	3	1	3	From Bombay.
16th " ...	...	2	2	4	6	
17th " ...	...	4	4	3	11	
18th " ...	...	2	2	...	5	
19th " ...	...	...	...	...	6	
20th " ...	...	1	1	1	3	
Total ...	1	49	50	38	112	

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 39.

*Statement of comparative Monthly Mortality from all Causes, Poona City.*

Month.	1891.	1892.	1893.	1894.	1895.	Average of 5 years 1891-95.	Equivalent annual death rate per mille of 5 years 1891-95.	1896.	Equivalent annual death rate per mille, 1896.
September... ..	377	202	221	311	339	290	29.28	164	16.56
October ... ..	236	205	216	251	239	229 $\frac{2}{5}$	23.17	160	16.20
November ... ..	204	313	201	278	260	251 $\frac{1}{5}$	25.38	170	17.16
December ... ..	409	238	206	225	225	260 $\frac{3}{5}$	26.33	270	27.24
	1892.	1893.	1894.	1895.	1896.	Average of 5 years, 1892-96.		1897.	
January ... ..	256	285	253	259	250	260 $\frac{3}{5}$	26.33	493	49.80
February ... ..	223	263	236	245	157	224 $\frac{1}{5}$	22.71	981	99.12
March ... ..	213	284	218	220	285	244	24.65	1,679	169.56
April ... ..	253	305	324	258	201	268 $\frac{1}{5}$	27.09	680	68.76
May 1st to 20th ... ..	156	206	164	170	186	176 $\frac{2}{5}$	27.6	119	18.6
Total ... ..	2,327	2,301	2,039	2,217	2,142	2,205 $\frac{1}{5}$	...	4,716	...

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 40.

*Statement showing by Castes, Plague Attacks, Plague Deaths, and Total Mortality from  
1st January to 20th May 1897.*

Caste.	Census Population.	PLAGUE ATTACKS.		PLAGUE DEATHS.		Total Mortality.	Rate per mille of total Mortality.	Remarks.
		Imported.	Indigenous.	Imported.	Indigenous.			
Máli... ..	5,783	...	42	...	30	134	23.17	
Simpi ... ..	4,035	7	60	7	41	173	42.87	
Maráthas ... ..	28,997	7	1,089	6	807	1,286	44.34	
Mahomedans ... ..	12,526	...	146	...	106	513	40.95	
Mochi ... ..	159	...	16	...	15	31	194.96	
Lonári ... ..	301	...	15	...	14	28	93.02	
Chambhár ... ..	1,698	...	12	...	10	42	24.73	
Gavli ... ..	587	...	11	...	10	27	25.99	
Bráhmín ... ..	24,932	6	138	6	86	476	19.9	
Bhoi... ..	1,053	...	13	...	9	50	47.49	
Gujar ... ..	1,033	1	23	1	18	58	56.15	
Kámáthi ... ..	350	1	13	...	11	30	85.71	
Rangári ... ..	218	...	6	...	6	18	82.57	
Pársi ... ..	164	...	2	...	1	5	30.49	
Támbat ... ..	670	...	20	...	11	43	64.18	
Wáni ... ..	612	1	48	1	42	60	98.04	
Pardesi ... ..	2,206	1	45	1	26	116	52.58	
Mahár ... ..	1,826	...	22	...	16	43	23.54	
Lingáyét ... ..	1,192	...	2	...	1	59	49.40	
Burud ... ..	450	...	4	...	3	11	94.44	
Sonár ... ..	2,306	2	47	1	36	125	54.20	
Vanjári ... ..	133	...	5	...	3	5	37.6	

## APPENDIX 40—continued.

Caste.	Census Population.	PLAGUE ATTACKS.		PLAGUE DEATHS.		Total mortality.	Rate per mille of total mortality.	Remarks.
		Imported.	Indigenous.	Imported.	Indigenous.			
Dhangar ...	1,207	1	8	1	7	43	35.6	
Kumbhár ...	3,737	...	16	...	12	27	7.2	
Máng ...	2,097	...	41	...	22	59	28.1	
Gosávi ...	493	...	3	...	3	7	14.2	
Khatrí ...	344	...	5	...	4	20	58.1	
Márwádi ...	450	...	13	...	6	39	86.7	
Sutár ...	985	...	14	...	7	27	27.4	
Jingar ...	1,154	1	11	...	10	17	14.7	
Nhávi ...	1,736	...	15	...	12	24	13.8	
Teli ...	835	...	10	...	8	40	47.9	
Kacchi ...	467	...	2	...	2	16	34.3	
Beldár ...	95	...	1	...	1	11	115.8	
Bairági ...	137	...	2	...	1	7	51.1	
Dalvale ...	33	...	...	...	...	2	60.6	
Rámoshi ...	266	...	...	...	...	4	15.04	
Badhai ...	125	...	16	...	12	14	112.	
Ghisádi ...	374	...	3	...	...	10	26.7	
Parit ...	881	...	2	...	1	17	19.3	
Bhangi ...	779	...	1	...	1	15	19.3	
Telangi ...	285	...	6	...	5	12	42.1	
Chaparband ...	63	...	2	...	2	15	238.00	
Native Christians.	811	...	7	...	3	14	17.3	
Sáli ...	1,695	...	8	...	3	28	16.5	
Koshti ...	853	...	11	...	4	29	34.	
Kirad ..	209	...	1	...	1	4	19.1	
Gurav ...	332	...	3	...	1	4	12.04	
Prábhú ...	694	1	2	...	1	9	12.96	
Kaikádi ...	326	...	3	...	2	7	21.47	
Johari ...	39	...	...	...	...	1	25.6	
Kásár ...	841	...	5	...	3	17	20.2	
Jews ...	584	...	3	...	2	7	11.98	
Lohár ...	250	...	...	...	...	2	8.	
Bhadbunji ...	49	...	6	...	5	5	102.	
Jangam ...	210	...	1	...	1	7	33.3	
Jain... ..	1,706	1	9	...	4	7	4.1	
Rajput ...	632	...	...	...	...	2	3.1	
Kathilkute ...	49	...	...	...	...	1	20.4	
Ràul... ..	118	...	3	...	3	4	33.9	
Dravid ...	41	...	...	...	...	1	24.3	
Bhandári ...	60	...	...	...	...	3	50.	
Madrási ...	154	...	3	...	2	3	19.4	
Joshi ...	103	...	...	...	...	1	9.7	
Pángul ...	38	...	...	...	...	1	26.3	
Dhor ...	153	...	...	...	...	1	6.5	
Total ...	117,721	30	2,015	24	1,453	3,917	...	

Note.—There were no deaths among castes that do not appear in this statement.

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.



## APPENDIX No. 41.

*Statement of daily Plague attacks, Plague deaths, and total mortality in Poona Suburban Municipal limits from date of first attack in October 1896 to 20th May 1897.*

Date. October 1896.		PLAGUE ATTACKS.			Plague deaths.	Total mortality.	Remarks whence imported.
		Im- ported.	Local.	Total.			
2nd October 1896	...	2	...	2	1	3	Bombay.
3rd do.	...	...	...	...	...	3	
4th do.	...	...	...	...	...	1	
5th do.	...	...	...	...	...	2	
7th do.	...	...	...	...	...	...	
6th do.	...	...	...	...	1	2	
8th do.	...	...	...	...	...	3	
9th do.	...	...	...	...	...	...	
10th do.	...	...	...	...	...	...	
11th do.	...	...	...	...	...	...	
12th do.	...	...	...	...	...	2	
13th do.	...	...	...	...	...	2	
14th do.	...	...	...	...	...	5	
15th do.	...	1	...	1	1	3	
16th do.	...	...	...	...	...	1	
17th do.	...	...	...	...	...	1	
18th do.	...	...	...	...	...	...	
19th do.	...	...	...	...	...	1	
20th do.	...	...	...	...	...	...	
21st do.	...	...	...	...	...	...	
22nd do.	...	...	...	...	...	2	
23rd do.	...	...	...	...	...	...	
24th do.	...	1	...	1	...	2	
25th do.	...	...	...	...	...	3	
26th do.	...	...	...	...	...	3	
27th do.	...	...	...	...	...	...	
28th do.	...	...	...	...	...	3	
29th do.	...	2	...	2	...	2	
30th do.	...	...	...	...	2	2	
31st do.	...	...	...	...	1	1	
		6	...	6	6	47	
1st November 1896	...	...	...	...	...	2	Bombay.
2nd do.	...	...	...	...	...	...	
3rd do.	...	...	...	...	...	1	
4th do.	...	1	...	1	...	1	
5th do.	...	...	...	...	...	...	
6th do.	...	...	...	...	...	3	
7th do.	...	...	...	...	...	1	
8th do.	...	...	...	...	...	1	
9th do.	...	...	...	...	...	...	
10th do.	...	...	...	...	...	4	
11th do.	...	...	...	...	...	...	
12th do.	...	...	...	...	...	2	
13th do.	...	...	...	...	...	1	
14th do.	...	...	...	...	...	...	
15th do.	...	...	...	...	...	...	
16th do.	...	...	...	...	...	2	
17th do.	...	...	...	...	...	5	
18th do.	...	...	...	...	...	...	
19th do.	...	...	...	...	...	2	
20th do.	...	...	...	...	...	...	
21st do.	...	...	...	...	...	1	
22nd do.	...	...	...	...	...	1	
23rd do.	...	...	...	...	...	...	
24th do.	...	...	...	...	...	...	
25th do.	...	...	...	...	...	1	
26th do.	...	...	...	...	...	1	
27th do.	...	...	...	...	...	1	
28th do.	...	...	...	...	...	...	
29th do.	...	...	...	...	...	2	
30th do.	...	...	...	...	...	2	
		1	..	1	...	34	

## APPENDIX No. 41—continued.

Date.	PLAGUE ATTACKS.			Plague deaths.	Total mortality.	Remarks whence imported.
	Im-ported.	Local.	Total.			
1st December 1896	...	...	...	...	...	Bombay.
2nd do.	1	...	1	1	4	
3rd do.	4	...	4	1	3	
4th do.	2	...	2	1	4	
5th do.	4	...	4	3	3	
6th do.	...	...	...	2	3	
7th do.	2	...	2	1	1	
8th do.	1	...	1	2	4	
9th do.	2	...	2	2	3	
10th do.	...	...	...	2	4	
11th do.	3	...	3	...	2	
12th do.	...	...	...	...	1	
13th do.	1	...	1	2	4	
14th do.	1	...	1	1	1	
15th do.	2	...	2	2	3	
16th do.	3	...	3	...	3	
17th do.	...	...	...	3	3	
18th do.	1	...	1	1	2	
19th do.	1	...	1	1	5	
20th do.	2	...	2	...	2	
21st do.	1	...	1	1	6	
22nd do.	4	...	4	...	2	
23rd do.	...	...	...	1	2	
24th do.	1	...	1	...	3	
25th do.	...	...	...	1	2	
26th do.	...	...	...	...	3	
27th do.	2	...	2	1	1	
28th do.	...	...	...	1	2	
29th do.	3	...	3	1	2	
30th do.	1	...	1	1	3	
31st do.	3	...	3	1	2	
	45	...	45	33	83	
1st January 1897	1	...	1	...	1	
2nd do.	4	...	4	4	4	
3rd do.	3	...	3	2	6	
4th do.	2	...	2	2	3	
5th do.	3	...	3	2	3	
6th do.	1	...	1	2	4	
7th do.	2	...	2	...	4	
8th do.	3	...	3	2	3	
9th do.	6	...	6	1	1	
10th do.	...	...	...	1	3	
11th do.	5	...	5	...	...	
12th do.	4	...	4	7	7	
13th do.	4	...	4	3	5	
14th do.	4	...	4	2	5	
15th do.	2	...	2	...	1	
16th do.	2	...	2	1	3	
17th do.	...	...	...	3	5	
18th do.	6	...	6	1	2	
19th do.	1	...	1	1	3	
20th do.	5	...	5	1	4	
21st do.	3	...	3	6	8	
22nd do.	1	...	1	3	5	
23rd do.	2	...	2	...	2	
24th do.	...	...	...	1	4	
25th do.	2	...	2	1	1	
26th do.	6	...	6	3	5	
27th do.	5	...	5	2	2	
28th do.	5	...	5	1	4	
29th do.	1	...	1	1	3	
30th do.	2	...	2	2	4	
31st do.	4	...	4	...	2	
	89	...	89	55	107	

## APPENDIX 41—continued.

Date.	Plague attacks.			Plague deaths.	Total mortality.	Remarks whence imported.
	Im-ported.	Local.	Total.			
1st February 1897	2	...	2	5	6	Bombay.
2nd "	3	...	3	3	7	Do.
3rd "	4	...	4	...	2	Do.
4th "	2	...	2	2	2	Do.
5th "	5	...	5	2	4	Do.
6th "	5	...	5	3	5	Do.
7th "	3	...	3	1	1	Do.
8th "	3	...	3	1	2	Do.
9th "	2	...	2	3	5	Do.
10th "	3	...	3	2	4	Do.
11th "	3	...	3	...	1	Do.
12th "	3	...	3	...	2	Do.
13th "	...	...	...	1	3	
14th "	3	...	3	1	1	Do.
15th "	4	...	4	1	2	Do.
16th "	...	...	...	1	1	
17th "	1	...	1	2	2	Do.
18th "	1	...	1	...	...	Do.
19th "	...	...	...	...	...	
20th "	1	...	1	1	1	Do.
21st "	2	1	3	...	2	Do.
22nd "	2	1	3	*1L	3	Do.
23rd "	1	1	2	*1L	2	Do.
24th "	...	1	1	*1L	2	
25th "	1	...	1	1	1	Do.
26th "	1	...	1	...	2	Do.
27th "	2	...	2	1	2	Do.
28th "	...	...	...	*1L	1	
Total	57	4	61	35	66	
1st March 1897	2	...	2	...	1	Lonikalbhar.
2nd "	1	...	1	1	3	Bombay.
3rd "	...	...	...	2	2	
4th "	2	...	2	...	...	Lonikalbhar.
5th "	1	...	1	...	...	Do.
6th "	1	...	1	...	...	Bombay.
7th "	...	...	...	...	2	
8th "	...	...	...	1	1	
9th "	1	...	1	1	3	Lonikalbhar.
10th "	1	...	1	...	4	Bombay.
11th "	...	...	...	...	2	
12th "	...	...	...	1	2	
13th "	...	...	...	...	...	
14th "	...	...	...	1	4	
15th "	...	1	1	...	...	
16th "	...	...	...	...	2	
17th "	...	1	1	*1L	1	
18th "	...	...	...	1	4	
19th "	1	...	1	1	3	Lonikalbhar.
20th "	1	2	3	*2L	3	
21st "	...	1	1	...	3	Bombay.
22nd "	...	...	...	*1L	2	
23rd "	3	...	3	...	2	Talegaon, Pandharpur, Karád.
24th "	2	...	2	1	4	Kamora village, Karmále.
25th "	2	...	2	...	...	Padmavati, Talegaon.
26th "	1	2	3	...	5	Wadgaon.
27th "	...	...	...	...	3	
28th "	1	...	1	...	1	Tukwa village, near Tale-
29th "	...	...	...	1	3	gaon.
30th "	...	...	...	1	3	
31st "	...	1	1	...	3	
Total	20	8	28	16	66	

\* L denotes deaths among local cases,



## APPENDIX 41—continued.

Date.	Plague attacks.			Plague deaths.	Total mortality.	Remarks whence imported.	
	Im-ported.	Local.	Total.				
1st April 1897	...	1	1	2	...	3	Lonikalbhar, Poona District.
2nd "	...	...	...	...	*1L	4	
3rd "	...	...	1	1	...	2	
4th "	...	1	...	1	...	1	Kondhanpur, Táluka Haveli, Poona District.
5th "	...	2	...	2	*1L	2	Nowli village, Peshwara, Poona District.
6th "	...	2	...	2	...	2	Bhovgaon, Poona District, Matheran.
7th "	...	...	...	...	...	...	
8th "	...	2	...	2	...	1	Kolhápúr and Mandradevi, Bhor State.
9th "	...	1	1	2	...	2	Rajegaon.
10th "	...	4	...	4	...	2	Bhor State, Sátára, Undala
11th "	...	2	...	2	*1L	2	Sátára, Sátára District and Kothwala near Jejuri.
12th "	...	1	...	1	1	3	
13th "	...	1	1	2	*1L	3	
14th "	...	...	...	...	1	1	
15th "	...	1	...	1	1	4	
16th "	...	...	...	...	...	1	
17th "	...	...	...	...	...	5	
18th "	...	...	...	...	...	2	
19th "	...	4	...	4	1	2	Dhankowri, Karakwasla, Lohogaon, Mawal.
20th "	...	...	...	...	...	4	
21st "	...	1	...	1	1	3	Mawal.
22nd "	...	1	1	2	...	...	Chakan, Táluka Khed.
23rd "	...	3	1	4	*1L2	3	Kolhápúr, Alandi, un-
24th "	...	...	1	1	*1L2	3	known.
25th "	...	...	...	...	1	2	Alandi.
26th "	...	1	...	1	...	1	Ahmednagar.
27th "	...	3	...	3	1	3	Unknown, Mhow, Shin-
28th "	...	...	...	...	...	1	davne.
29th "	...	1	...	1	...	3	Bibyachi Wadi.
30th "	...	...	...	...	1	1	
Total	...	32	7	39	17	66	
1st May 1897	...	2	...	2	...	...	1 Sátára, 1 Ahmednagar.
2nd "	...	...	...	...	...	1	
3rd "	...	...	...	...	...	...	
4th "	...	...	...	...	...	1	
5th "	...	...	...	...	...	3	
6th "	...	...	1	1	*1L	1	
7th "	...	1	...	1	1	1	Poona Cantonment, New Modikhana.
8th "	...	...	...	...	...	...	
9th "	...	...	...	...	...	1	
10th "	...	...	...	...	...	2	
11th "	...	...	...	...	...	2	
12th "	...	...	...	...	...	2	
13th "	...	...	...	...	...	1	
14th "	...	...	...	...	...	4	
15th "	...	...	...	...	...	2	
16th "	...	1	...	1	...	3	Bhamburda, Táluka Haveli, Poona Collectorate.
17th "	...	1	...	1	...	1	Ahmednagar.
18th "	...	...	...	...	...	5	
19th "	...	...	...	...	...	3	
20th "	...	...	...	...	...	1	
Total	...	5	1	6	2	34	

\* L denotes deaths among local cases.

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.

# APPENDIX 42.

## POONA SUBURBAN MUNICIPALITY.

### Statement of comparative Monthly Mortality from all causes.

Month.	1891.	1892.	1893.	1894.	1895.	Average of 5 years, 1891-95.	Equivalent average annual death-rate per mille of 5 years, 1891-95.	1896.	Equivalent annual death- rate per mille, 1896.	REMARKS.
September ...	68	44	35	28	37	42.4	75.6	31	55.2	
October ...	50	40	33	37	46	41.2	73.2	47	84	
November ...	37	49	34	29	39	37.6	67.2	34	60	
December ...	46	30	28	31	37	34.4	61.2	83	148.8	
Month.	1892.	1893.	1894.	1895.	1896.	Average of 5 years, 1892-96.	Equivalent average annual death-rate per mille of 5 years, 1892-96.	1897.	Death-rate per mille 1897.	REMARKS.
January ...	22	39	41	36	43	36.2	64.8	107	192	
February ...	21	31	32	24	26	26.8	48	66	117.6	
March ...	34	39	30	33	40	35.2	62.4	66	117.6	
April ...	27	28	39	36	34	32.8	57.6	66	117.6	
May 1-20 ...	11	18	29	24	33	23	40.8	34	60	

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.

**APPENDIX 43.**  
**POONA SUBURBAN MUNICIPALITY.**

*Statement showing by caste plague attacks, plague deaths and total mortality from 1st January 1897 to 20th May 1897.*

Caste.	Census Population.	NUMBER OF PLAGUE ATTACKS.			NUMBER OF PLAGUE DEATHS.			Total mortality.	Rate per mille of total mortality.	REMARKS.
		Imported.	Local.	Total.	Imported.	Local.	Total.			
1	2	3	4	5	6	7	8	9	10	11
European ...	104	1	...	1	...	...	...	6	57.6	
Eurasian ...	96	1	...	1	1	...	1	5	52.	
Native Christian ...	436	...	1	1	...	1	1	23	52.7	
Jew ...	53	...	...	...	...	...	...	2	37.7	
Parsi ...	193	4	...	4	4	...	4	6	31.	
Mahomedan ...	684	15	5	20	7	4	11	47	68.6	
Bráhmín ...	192	6	...	6	2	...	2	12	62.	
Bhoi ...	39	...	...	...	...	...	...	...	...	
Bhangi ...	45	...	1	1	...	1	1	1	22.2	
Badhai ...	1	...	...	...	...	...	...	...	...	
Bhándári ...	7	...	...	...	...	...	...	...	...	
Bhil ...	1	...	...	...	...	...	...	...	...	
Burud ...	2	...	...	...	...	...	...	...	...	
Beldár ...	90	...	...	...	...	...	...	3	33.2	
Buddhist ...	1	...	...	...	...	...	...	...	...	
Chambhár ...	53	4	...	4	4	...	4	8	150.9	
Dhangar ...	20	...	...	...	...	...	...	4	200.	
Dhed ...	7	...	...	...	...	...	...	...	...	
Gurao ...	15	...	...	...	...	...	...	...	...	
Gosávi ...	34	...	...	...	...	...	...	...	...	
Gujar ...	2	...	...	...	...	...	...	...	...	
Ghisadi ...	5	...	...	...	...	...	...	1	200.	
Gowli ...	54	...	...	...	...	...	...	2	37.	
Komti ...	7	...	...	...	...	...	...	...	...	
Halálkhor ...	24	...	...	...	...	...	...	...	...	
Jain ...	25	...	...	...	...	...	...	1	40.	
Jangam ...	2	...	...	...	...	...	...	...	...	
Kánáthi ...	25	10	...	10	10	...	10	11	440.	
Kunbi ...	964	...	...	...	...	...	...	...	...	
Khatrí ...	10	...	...	...	...	...	...	...	...	
Kumbhár ...	47	...	...	...	...	...	...	2	42.5	
Koli ...	48	...	...	...	...	...	...	...	...	
Kásár ...	4	...	...	...	...	...	...	...	...	
Kachi ...	12	...	...	...	...	...	...	...	...	
Katari ...	16	...	...	...	...	...	...	...	...	
Kori ...	52	...	...	...	...	...	...	...	...	
Kaikadi ...	10	...	...	...	...	...	...	...	...	
Kosti ...	2	1	...	1	1	...	1	4	2000.	
Lingáit ...	11	...	...	...	...	...	...	...	...	
Lohár ...	13	...	...	...	...	...	...	...	...	
Marátha ...	1,054	143	11	154	71	7	78	145	137.5	
Máli ...	269	...	...	...	...	...	...	3	11.1	
Márwádi ...	3	...	...	...	...	...	...	2	666.6	
Mhár ...	1,242	12	2	14	4	2	6	17	13.6	
Mang ...	85	...	...	...	...	...	...	2	23.5	
Mehetar ...	17	...	...	...	...	...	...	...	...	
Madrási ...	5	...	...	...	...	...	...	...	...	
Mochi ...	5	...	...	...	...	...	...	...	...	
Naidu ...	7	...	...	...	...	...	...	...	...	
Nhávi ...	33	6	...	6	6	...	6	6	181.8	
Parit ...	199	...	...	...	...	...	...	2	10.1	
Pardeshi ...	42	...	...	...	...	...	...	5	119.	
Parbhu ...	14	...	...	...	...	...	...	...	...	
Rámoshi ...	37	...	...	...	...	...	...	2	54.	
Rajput ...	11	...	...	...	...	...	...	...	...	
Shimpi ...	49	...	...	...	...	...	...	2	40.8	
Sutár ...	10	...	...	...	...	...	...	1	100.	
Sonár ...	10	...	...	...	...	...	...	1	100.	
Teli ...	16	...	...	...	...	...	...	1	62.5	
Thakar ...	6	...	...	...	...	...	...	...	...	
Tamboli ...	2	...	...	...	...	...	...	...	...	
Telangi ...	12	...	...	...	...	...	...	1	83.3	
Tambat ...	2	...	...	...	...	...	...	...	...	
Váni ...	44	...	...	...	...	...	...	4	90.9	
Vadari ...	118	...	...	...	...	...	...	1	8.4	
Vanjári ...	8	...	...	...	...	...	...	...	...	
Bairági ...	...	...	...	...	...	...	...	4	...	
Bharadi ...	...	...	...	...	...	...	...	1	...	
Vaidu ...	...	...	...	...	...	...	...	1	...	
Total ...	6,706	203	20	223	110	15	125	339	...	

These castes not appearing in the census population do not appear in column 2, hence percentage of mortality cannot be given.

R. A. LAMB,  
Chairman, Poona Plague Committee.



## APPENDIX 44.

*Statement of Daily Plague Attacks, Plague Deaths and Total Mortality in Poona Cantonment from 1st December 1896 to 20th May 1897.*

Date.	PLAGUE ATTACKS.			Plague Deaths.	Total Mortality.	REMARKS.
	Import- ed.	Local.	Total.			
1st December 1896	...				2	
2nd do.	...				...	
3rd do.	...				2	
4th do.	...				...	
5th do.	...				2	
6th do.	...				1	
7th do.	...				1	
8th do.	...				1	
9th do.	...				...	
10th do.	...				1	
11th do.	...				...	
12th do.	...				...	
13th do.	...				1	
14th do.	...				1	
15th do.	...				...	
16th do.	...		Nil.		1	
17th do.	...				4	
18th do.	...				4	
19th do.	...				3	
20th do.	...				2	
21st do.	...				2	
22nd do.	...				...	
23rd do.	...				...	
24th do.	...				1	
25th do.	...				2	
26th do.	...				2	
27th do.	...				1	
28th do.	...				2	
29th do.	...				...	
30th do.	...				...	
31st do.	...				...	
	...	...	...	...	36	
1st January 1897	...				2	
2nd do.	...				...	
3rd do.	...				4	
4th do.	...				2	
5th do.	...				3	
6th do.	...				...	
7th do.	...				6	
8th do.	...				4	
9th do.	...				2	
10th do.	...				2	
11th do.	...				1	
12th do.	...				2	
13th do.	...		Nil.		...	
14th do.	...				1	
15th do.	...				3	
16th do.	...				3	
17th do.	...				1	
18th do.	...				1	
19th do.	...				3	
20th do.	...				...	
21st do.	...				2	
22nd do.	...				4	
23rd do.	...				...	
24th do.	...				...	
25th do.	...				2	
26th do.	1	...	1	...	1	Imported from Bombay.
27th do.	1	...	1	...	2	Do.
28th do.	...	...	...	...	2	

Date.	PLAGUE ATTACKS.			Plague Deaths.	Total Mortality.	REMARKS.						
	Import- ed.	Local.	Total.									
29th January 1897	...	1	...	1	...	3	Imported from Bombay.					
30th do.	...	...	...	...	...	...						
31st do.	...	...	...	...	...	1						
		3	...	3	...	57						
1st February 1897	...		Nil.			2	Imported from Bombay.					
2nd do.	...					2						
3rd do.	...					2						
4th do.	...					4						
5th do.	...					3						
6th do.	...					2						
7th do.	...					3						
8th do.	...					1						
9th do.	...	1	...	6								
10th do.	...	Nil.				1						
11th do.	...					2						
12th do.	...					3						
13th do.	...					2						
14th do.	...					3						
15th do.	...					2						
16th do.	...					5						
17th do.	...					1		...	2			
18th do.	...	...	1	1	5							
19th do.	...	...	1	...	4							
20th do.	...	...	...	...	3							
21st do.	...	...	1	...	1							
22nd do.	...	...	1	...	1							
23rd do.	...	...	...	...	1							
24th do.	...	1	...	1	1	Imported from City.						
25th do.	...	...	1	1	2							
26th do.	...	Nil.						1				
27th do.	...					2						
28th do.	...					1						
		2	5	7	4	67						
1st March 1897	...		Nil.			1	Imported from City.					
2nd do.	...					1						
3rd do.	...					2		...	2	5		
4th do.	...					...		Nil.	...	7		
5th do.	...					1		...	1	2	Imported near Loni.	
6th do.	...					...		4	4	3		
7th do.	...					...		3	3	1	{	3
8th do.	...											
9th do.	...					...		2	2	1	5	
10th do.	...					...		3	3	2	5	
11th do.	...					1		1	2	1	2	Imported from City.
12th do.	...					{		Nil.			{	
13th do.	...											3
14th do.	...					{		...	2	...	{	3
15th do.	...											
16th do.	...					...		4	4	...	1	
17th do.	...					1		...	1	...	4	Do.
18th do.	...					{		1	2	3	{	
19th do.	...											5
20th do.	...					...		4	4	1	...	Do.
21st do.	...					{		...	3	2	{	
22nd do.	...											2
23rd do.	...					...		2	2	1	2	
24th do.	...					...		4	4	2	8	
25th do.	...					...		3	3	2	4	
26th do.	...					1		7	8	2	4	Imported from Bombay.
27th do.	...					...		4	4	1	...	
28th do.	...					{		1	4	5	6	{
29th do.	...	3										

## APPENDIX 44—concluded.

Date.	PLAGUE ATTACKS.			Plague Deaths.	Total Mortality.	REMARKS.
	Imported.	Local.	Total.			
30th March 1897	...	1	1	...	1	Imported from City.
31st do.	1	10	11	* 15	1	
	9	63	72	44	99	
1st April 1897	...	1	1	...	...	Do.
2nd do.	...	4	4	2	8	
3rd do.	...	...	...	...	2	
4th do.	2	10	12	7	4	Do.
5th do.					1	
6th do.	...	2	2	1	2	
7th do.	4	7	11	5	4	Do.
8th do.	...	1	1	1	3	
9th do.	...	1	1	2	4	Do.
10th do.	...	1	1	1	2	
11th do.	...	...	...	...	7	
12th do.	1	6	7	5	1	Do.
13th do.	...	1	1	1	3	
14th do.	...	8	8	6	5	
15th do.	1	6	7	8	4	Do.
16th do.					6	
17th do.	...	...	...	...	5	
18th do.	1	5	6	6	1	Do.
19th do.					5	
20th do.	...	...	...	...	5	
21st do.	1	4	5	3	4	Imported from Bhor.
22nd do.	1	1	2	1	1	
23rd do.	...	4	4	1	6	Do. City.
24th do.	...	3	3	5	2	
25th do.	...	1	1	1	4	Do.
26th do.					2	
27th do.	...	2	2	1	1	
28th do.	...	1	1	1	2	Do.
29th do.	...	6	6	6	7	
30th do.					6	
	11	75	86	64	107	
1st May 1897	...		Nil.		2	
2nd do.	}	3	3	4	7	
3rd do.					...	
4th do.	...	3	3	2	2	
5th do.	...	1	1	...	1	
6th do.	...	4	4	3	2	
7th do.	...		Nil.		2	
8th do.	...	1	1	...	2	
9th do.	}	3	3	6	8	
10th do.					...	
11th do.	...	1	1	...	2	
12th do.	}		Nil.		2	
13th do.					3	
14th do.	...	1	1	...	1	
15th do.	...	1	1	1	1	
16th do.	}	...	...	2	5	
17th do.					3	
18th do.	...	2	2	...	3	
19th do.	...	...	...	...	3	
20th do.	...	...	...	...	2	
	...	20	20	18	47	
	25 † 1	163	188 † 1	130 † 1	411	

\* This number includes the deaths shown in the daily returns, dated 31st March 1897, taken from Plague Hospital.

† This case occurred in November last.

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.



APPENDIX 45.

*Comparative Statement of Monthly Mortality in Poona Cantonment.*

Month.	1891.	1892.	1893.	1894.	1895.	Average of 5 years, 1891-95.	Equivalent average annual death rate per mille of 5 years, 1891-95.	1896.	Equivalent annual death rate per mille, 1896.
September ...	100	58	64	70	61	70.6	24.1	40	13.6
October ...	69	56	60	61	35	56.2	19.1	42	14.3
November ...	49	79	63	59	59	61.8	21.2	58	19.8
December ...	104	75	55	53	57	68.8	23.5	35	12
Month.	1892.	1893.	1894.	1895.	1896.	Average of 5 years, 1892-96.	Equivalent average annual death rate per mille of 5 years, 1891-95.	1897.	Equivalent annual death rate per mille, 1897.
January ...	54	85	65	53	50	61.4	20.7	57	19.4
February ...	53	75	48	45	41	52.4	17.9	67	22.8
March ...	52	81	53	65	47	59.6	20.3	97	33.1
April ...	57	66	66	69	53	62.2	21.2	107	36.4
May, 1-20 ...	31	46	44	37	33	38.2	20.1	47	24.6

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 46.

*Statement showing by Caste, Plague Attacks, Plague Deaths, and Total Mortality in Poona Cantonment from 1st January 1897 to 20th May 1897.*

Caste.	Census Population.	ATTACKS.			DEATHS.			Total mortality.	Rate per mille of total mortality.	Remarks.
		Imported.	Indigen-ous.	Total.	Imported.	Indigen-ous.	Total.			
Europeans ... ..	2,622	1	1	2	...	...	...	7	2·67	
Christians ... ..	4,060	1	19	20	...	12	12	32	7·88	
Mahomedans ... ..	6,794	1	26	27	1	22	23	91	13·39	
Pársis ... ..	1,311	2	11	13	...	5	5	25	19·07	
Maráthas ... ..	3,191	5	21	26	4	3	7	33	10·02	
Máhar... ..	4,171	...	14	14	...	11	11	48	11·50	
Kamatis ... ..	339	2	27	29	2	17	19	41	120·94	
Dhobi ... ..	639	1	1	2	1	...	1	3	4·69	
Madrási ... ..	102	...	2	2	...	2	2	4	39·21	
Simpí ... ..	1,035	5	8	13	2	3	5	12	11·59	
Bhangi ... ..	198	1	1	2	1	1	2	4	20·20	
Máng ... ..	381	...	1	1	...	1	1	5	13·12	
Gowli ... ..	744	...	4	4	...	2	2	5	6·72	
Bánia ... ..	54	...	4	4	...	...	...	4	74·07	
Bráhmin ... ..	208	...	...	...	...	...	...	1	4·80	
Others ... ..	8,400	6	23	29	5	35	40	67	7·97	
Total ... ..	34,249	25	163	188	16	114	130	382	...	

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 47.

*Notification dated 16th May 1897.*

The public are informed that the house-to-house inspection by the Military in Poona City will end on Wednesday, the 19th instant. As, however, cases of plague are still occurring, it will continue to be necessary to remove to the segregation camp the inmates of houses where plague cases occur, or where deaths take place, the cause of which is not satisfactorily shown to be something other than plague, and to disinfect the houses themselves. The Plague Committee will be satisfied that a death is not due to plague when a certificate to that effect signed by a qualified medical practitioner is presented at the City Municipal Office.

In the case of deaths in respect of which no such certificates have been presented, the following arrangements will be made in order to diminish as far as possible the number of houses to be treated as plague infected :—

A Medical Officer appointed by the Committee will go round the City between the hours of 7 and 9 a.m. and 5 and 7 p.m. to houses at which deaths have occurred to examine the corpses of persons whose deaths have been registered at the Municipal Office since the time of his last round. When he is satisfied on examination that a death is not due to plague, the house in which it occurred will not be liable to disinfection nor the inmates to segregation. The Medical Officer will not examine a corpse in any case in which its examination by him is objected to by the inmates of the house. When however examination is objected to, or for any cause cannot be made, it will be necessary to disinfect the house in which the death occurred, and to segregate the inmates.

(True copy.)

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 48.

*Statement of Plague cases discovered by the Municipal Medical men at the Poona Railway Stations.*

Date.	Suspected and true Plague cases discovered.	REMARKS.
1896.		
October 2 ...	2	From Bombay to Sátára and Walhe.
3 ...	1	" Lonand.
4 ...	3	" Miraj, Kolhápúr and to Karád.
5 ...	4	" Jejuri, 1 Rájevádi, 2 Lonand.
6 ...	1	" Koregaon.
7 ...	2	" Koregaon, Karád.
8 ...	1	" Rájevádi.
9 ...	2	" Phursungi, Sásvad Road.
10 ...	1	" Sátára.
11 ...	1	" Hyderabad, Deccan.
15 ...	3	" Bombay to Hyderabad, Deccan ; 2 Masur.
16 ...	1	" Koregaon.
17 ...	2	" Masur 2.
18 ...	1	" Lonand.
21 ...	1	" Koregaon.
24 ...	1	" Bombay to Sásvad.
25 ...	1	" " to Masur.
30 ...	4	" Masur and Karád 2, 1 Lonand.
Total ...	32	
1896.		
November 1 ...	3	From Bombay to Karád, Masur, Lonand.
2 ...	4	" Masur, Koregaon, Jejuri, Sátára.
3 ...	1	" Sátára Road.
4 ...	5	" Koregaon, Bársi Road, Hyderabad and Karád.
5 ...	1	" Miraj.
6 ...	2	" Masur and Lonand.
7 ...	3	" SÁNGLI, Miraj, Koregaon.
8 ...	4	" Hyderabad, Deccan 2, 2 Masur.
13 ...	4	" Masur, Rájevádi, Lonand, Kore- gaon.
14 ...	1	" Masur.
15 ...	5	" Masur, Koregaon, Hyderabad and Karád.
16 ...	2	" Miraj and SÁNGLI.
17 ...	4	" Lonand, Masur 2 for Walhe.
18 ...	3	" Lonand, Walhe, Jejuri.
19 ...	1	" Hyderabad, Deccan.
20 ...	6	" 2 Masur, 2 Rájevádi, Karád and Koregaon.
21 ...	2	" Lonand.
22 ...	1	" Masur.
23 ...	1	" Masur.
24 ...	1	" Masur.
25 ...	1	" Rájevádi.
26 ...	1	" Karád.
28 ...	2	" Sátára and Miráj.
29 ...	3	" Walhe, Jejuri, Koregaon.
30 ...	4	" Miraj, Kolhápúr and 2 Lonand.
Total ...	65	



Date.	Suspected and true Plague cases discovered.	REMARKS.
1896.		
December 1 ...	6	From Bombay to Karád, Koregaon, Miraj, Shirol road, Masur.
2 ...	3	„ Karád and 2 for Masur.
3 ...	4	„ Rájevádi, Jejuri and 2 for Lonand.
4 ...	8	„ 2 for Kundal road, Karád, Koregaon, Lonand and 3 Kolhápur.
5 ...	2	„ Miraj and Kolhápur.
6 ...	1	„ Masur.
7 ...	2	„ Masur and Rájevádi.
8 ...	3	„ Kundgal, Koregaon, Karád.
9 ...	1	„ Lonand.
10 ...	4	„ Miraj, Shetbal, 2 Masur.
11 ...	5	„ Rájevádi.
12 ...	3	„ Masur, Phursungi, Rájevádi.
13 ...	2	„ Masur.
14 ...	1	„ Masur.
15 ...	1	„ Lonand.
16 ...	1	„ Jejuri.
17 ...	1	„ Kolhápur.
18 ...	1	„ Miraj.
19 ...	1	„ Karád.
20 ...	1	„ Rájevádi.
21 ...	1	„ Sásvad Road.
22 ...	6	„ 2 Rájevádi, 1 Kundal, 2 Karád, 1 Koregaon.
23 ...	3	„ Masur, Rájevádi.
24 ...	2	„ Londa, Karád.
25 ...	2	„ Karád, Rájevádi.
26 ...	3	„ Masur, Rájevádi, Shetbal.
27 ...	1	„ Koregaon.
28 ...	5	„ Masur, Koregaon, 2 Shetbal.
29 ...	6	„ Kolhápur, Rájevádi, Phursungi.
30 ...	2	„ Masur, Lonand.
31 ...	3	„ Masur, 2 Walhe.
Total ...	85	
1897.		
January 1 ...	4	From Bombay, Walhe, Jejuri, Masur.
2 ...	2	„ Masur.
3 ...	5	„ Jejuri, Kolhápur, Miraj, Karád.
4 ...	4	„ Karád, Masur, Sásvad, Walhe.
5 ...	3	„ Walhe, Masur.
6 ...	6	„ 3 Hyderabad (Deccan), Masur, Jejuri.
7 ...	5	„ Walhe, Jejuri, Karád, Sásvad.
8 ...	2	„ Masur, Lonand.
9 ...	8	„ Koregaon, Masur, Lonand.
10 ...	9	„ Masur, Koregaon, Masur, Lonand.
11 ...	6	„ Walhe, Jejuri, Miraj.
12 ...	4	„ Hyderabad, Jejuri, Lonand.
13 ...	3	„ Jejuri, Sásvad Road, Lonand.
14 ...	2	„ Walhe, Karád.
15 ...	1	„ Rájevádi.
16 ...	1	„ Lonand.
17 ...	1	„ Hyderabad (Deccan).
18 ...	1	„ Rájevádi.
19 ...	3	„ Coorla to Rájevádi, Lonand, Masur.
20 ...	4	„ Bombay to Masur, Walhe, Jejuri.
21 ...	2	„ Karád, Koregaon.
22 ...	1	„ Masur.
23 ...	4	„ Koregaon, Karád, Masur.
24 ...	4	„ Koregaon, Walhe.

Date.			Suspected and true Plague cases discovered.	REMARKS.
1897.				
January	25	...	4	From Jejuri, Walhe, Lonand.
	26	...	5	„ Shenoli, Walhe, Jejuri.
	27	...	2	„ Shenowli.
	28	...	5	„ Walhe, Jejuri, Rájevádi.
	29	...	6	„ Koregaon, Jejuri, Masur.
	30	...	7	„ Walhe, Lonand, Masur.
	31	...	4	„ Miraj, Rájevádi and Walhe.
Total	...		118	
1897.				
February	1	...	4	From Bombay to Masur, Walhe, Rájevádi.
	2	...	7	„ „ to Walhe, Jejuri, Shenowli.
	3	...	8	„ Wáthár, Miraj.
	4	...	5	„ Wáthár, Shenowli, Miraj.
	5	...	6	„ Lonand, Wáthár, Kolhápúr.
	6	...	4	„ Rájevádi, Jejuri, Walhe.
	7	...	3	„ Kundal Road, Sátára.
	8	...	2	„ Masur, Koregaon.
	9	...	3	„ Wáthár, Miraj.
	10	...	6	„ Shirol Road, Miraj.
	11	...	5	„ Wáthár, Jejuri, Rájevádi.
	12	...	1	„ Kolhápúr.
	13	...	3	„ Hyderabad (Deccan), Masur.
	14	...	1	„ Lonand.
	15	...	5	„ Kalyán to Wáthár to Jejuri.
	16	...	4	„ Bombay to Wáthár and Wáthár.
	17	...	2	„ Lonand, Shenowli.
	18	...	3	„ Wáthár, Koregaon.
	19	...	5	„ Karád, Masur.
	20	...	4	„ Koregaon, Sásvad Road.
	21	...	9	„ Miraj, Kolhápúr, Wáthár.
	22	...	2	„ Wáthár, Jejuri, Sásvad.
	23	...	4	„ Karád, Koregaon, Masur.
	24	...	5	„ Masur, Lonand, Walhe.
	25	...	3	„ Walhe, Wáthár, Sásvad.
	26	...	4	„ Koregaon, Masur.
	27	...	2	„ Masur, Walhe.
Total	...		107	
1897.				
March	1	...	4	From Bombay to Masur, Walha and Karád.
	2	...	3	„ Walhe and Wáthár.
	3	...	2	Pona to Ahmednagar and Bombay to Wáthár.
	4	...	1	Do. do. to Sásvad.
	5	...	5	From Bombay, Wáthár, Lonand, Karád.
	6	...	6	„ Karád, Shenowli, Koregaon.
	7	...	2	„ Karád and Masur.
	8	...	4	„ Masur, Lonand and Karád.
	9	...	3	„ Wáthár, Lonand and Phursungi.
	10	...	5	„ Hyderabad (Deccan) and Miraj.
	11	...	7	„ Masur, Walhe, Koregaon and Jejuri.
	12	...	5	„ Wáthár, Walhe, Jejuri, Lonand.
	13	...	4	„ Jejuri, Kolhápúr and Miraj.
	14	...	2	„ Wáthár, Shenowli and Jejuri.
	15	...	1	„ Walhe, Lonand and Koregaon.

Date.	Suspected and true Plague cases discovered.	REMARKS.
1897.		
March 16 ...	...	
17 ...	5	From Masur, Karád and Koregaon.
18 ...	6	„ Hyderabad (Deccan), Masur, Jejuri.
19 ...	4	„ Masur, Lonand, Karád, Kolhápúr.
20 ...	5	„ Karád, Walhe, Koregaon, Lonand.
Total ...	74	
Total of suspected and discovered	481	true plague cases

R. A. LAMB,

Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 49.

*Statement showing the daily number of true or suspected cases of Plague discovered by the Government Medical Inspecting Staff at the Railway Station, Poona.*

Date.	Number of actual cases.	Number of suspected cases.	Total for the 24 hours of all cases.
1897.			
March 15 ...	2	2	4
16 ...	...	1	1
17 ...	1	1	2
18 ...	...	...	...
19 ...	...	1	1
20 ...	1	...	1
21 ...	2	3	5
22 ...	...	2	2
23 ...	...	3	3
24 ...	...	...	...
25 ...	1	...	1
26 ...	...	5	5
27 ...	...	2	2
28 ...	...	2	2
29 ...	1	1	2
30 ...	...	4	4
	8	27	35
April 1 ...	...	1	1
2 ...	...	1	1
3 ...	1	1	2
4 ...	1	...	1
5 ...	1	3	4
6 ...	2	3	5
7 ...	1	2	3
8 ...	...	1	1
9 ...	2	1	3



Date.			Number of actual cases.	Number of suspected cases.	Total for the 24 hours of all cases.
1897.					
April	10	...	1	4	5
	11	...	1	...	1
	12	...	...	...	...
	13	...	...	1	1
	14	...	...	3	3
	15	...	1	1	2
	16	...	...	2	2
	17	...	...	...	...
	18	...	...	4	4
	19	...	...	4	4
	20	...	...	1	1
	21	...	...	2	2
	22	...	...	1	1
	23	...	...	2	2
	24	...	1	1	2
	25	...	...	4	4
	26	...	...	2	2
	27	...	...	2	2
	28	...	2	4	6
	29	...	...	5	5
	30	...	...	2	2
			14	58	72
May	1	...	2	...	2
	2	...	...	...	...
	3	...	2	...	2
	4	...	...	2	2
	5	...	...	1	1
	6	...	...	2	2
	7	...	1	4	5
	8	...	1	1	2
	9	...	...	4	4
	10	...	...	2	2
	11	...	...	1	1
	12	...	...	7	7
	13	...	1	1	2
	14	...	...	2	2
	15	...	...	2	2
	16	...	...	...	...
	17	...	...	...	...
	18	...	...	2	2
	19	...	...	4	4
	20	...	1	5	6
			8	40	48
Grand Total	...		30	125	155

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 50.

*Statement of suspected and true Plague Cases found by Southern Marátha Railway Medical Men at the Poona Railway Station.*

Date.	Number of cases.	REMARKS.
1896.		
29th October ...	4	Bombay to Sátára and Masur.
30th " ...	2	Do. to Masur.
31st " ...	1	Do. to Walha.
Total ...	7	
2nd November ...	1	Bombay to Masur.
4th " ...	2	Do. one to Karád and one Kundal.
5th " ...	1	Do. to Jejuri.
6th " ...	2	Do. to Sátára.
7th " ...	3	Do. two Sátára and one Masur.
10th " ...	2	Do. to Sátára.
12th " ...	1	Do. to Jejuri.
13th " ...	2	Do. to Masur.
16th " ...	1	Do. do.
18th " ...	1	Do. to Karád.
20th " ...	2	Do. to Sátára.
21st " ...	1	Do. to Salpa.
23rd " ...	2	Do. to Sátára and one Masur.
24th " ...	1	Do. to Sátára.
25th " ...	1	Do. to Koregaon.
26th " ...	2	Do. to one Sátára and Masur.
27th " ...	1	Do. to Sátára.
28th " ...	2	Do. do.
29th " ...	1	Do. to Masur.
Total ...	29	
1st December ...	2	Bombay to Sátára.
2nd " ...	1	Do. to Jejuri.
3rd " ...	2	Do. to Masur.
4th " ...	2	Do. to Sátára and one Masur.
5th " ...	1	Do. to Salpa.
6th " ...	3	Do. to two Sátára and one Karád.
7th " ...	1	Do. to Walhe.
10th " ...	1	Do. to Sátára.
11th " ...	1	Do. to Masur.
12th " ...	2	Do. to Sátára.
14th " ...	2	Do. to one Sátára and one Koregaon.
16th " ...	1	Do. to Rahimatpur.
18th " ...	3	Do. to one Sátára, two Masur.
19th " ...	1	Do. to Sátára.
20th " ...	1	Do. to Koregaon.
22nd " ...	1	Do. to Masur.
23rd " ...	2	Do. to one Jejuri and one Sátára.
25th " ...	1	Do. to Jejuri.
27th " ...	2	Do. to Masur.
28th " ...	1	Do. to Salpa.
29th " ...	1	Do. to Rajewádi.
30th " ...	1	Do. to Masur.
31st " ...	1	Do. to Sátára.
Total ...	34	
1897.		
1st January ...	2	Bombay to Rajewádi.
3rd " ...	1	Do. to Sátára.
4th " ...	2	Do. to Masur.
5th " ...	2	Do. to one Masur and one Kundal.
6th " ...	1	Do. to Sátára.
7th " ...	3	Do. do.
8th " ...	2	Do. to Masur.
10th " ...	1	Do. do.
11th " ...	1	Poona to Sátára.
12th " ...	2	Bombay, one to Jejuri and one Nira.
13th " ...	3	Do. two to Masur and one Walhe.

## APPENDIX 50—continued.

Date.	Number of cases.	REMARKS.
1897.		
15th January ...	2	Bombay, one to Lonand and one Salpa.
17th " ...	1	Do. to Sátára.
18th " ...	1	Do. to Masur.
20th " ...	2	Do. to Wala.
21st " ...	1	Do. to Sátára.
22nd " ...	1	Do. to Saswad.
23rd " ...	1	Do. to Watar.
24th " ...	1	Do. to Wala.
25th " ...	2	Do. to Sátára.
27th " ...	1	Do. to Masur.
28th " ...	3	Do. one Sátára, one Koregaon, one Wala.
29th " ...	1	Do. to Sátára.
30th " ...	2	One Bombay to Sátára and one Poona to Sátára.
Total ..	39	
2nd February ...	1	Poona to Sátára.
4th " ...	2	Do. to Masur.
5th " ...	1	Bombay to Sátára.
6th " ...	1	Poona to Wathar.
8th " ...	2	Do. to Sátára.
9th " ...	1	Bombay to Masur.
11th " ...	2	Poona to Masur.
12th " ...	1	Do. to Jejuri.
13th " ...	2	Do. to Sátára.
15th " ...	2	Bombay to Wathar and Poona to Sátára.
17th " ...	1	Poona to Nira.
18th " ...	1	Do. to Lonand.
19th " ...	1	Bombay to Sátára.
21st " ...	2	Poona to Miraj.
22nd " ...	1	Do. to Belgaum.
24th " ...	1	Bombay to Belgaum.
26th " ...	1	Poona to Miraj.
27th " ...	1	Do. to Belgaum.
28th " ...	1	Do. to Sátára.
Total ...	25	
1st March ...	1	Poona to Belgaum.
3rd " ...	2	Do. to Sátára.
4th " ...	1	Bombay to Wala.
5th " ...	1	Poona to Jejuri.
8th " ...	2	Do. to Belgaum.
9th " ...	1	Bombay to Miraj.
10th " ...	1	Poona to Jejuri.
11th " ...	2	Do. to Sátára and Miraj.
Total ...	11	
4th April ...	2	Bombay to Salpa.
12th " ...	3	Poona to Sangli, Kalyan to Sátára, Bombay to Karad.
13th " ...	1	Bombay to Karad.
14th " ...	2	Do. to Sátára.
22nd " ...	1	Do. do.
23rd " ...	1	Do. do.
26th " ...	2	Do. do. and one Poona to Koregaon.
Total ...	12	
1st May ...	1	Poona to Miraj.
2nd " ...	1	Bombay to Karad.
8th " ...	1	Do. to Belgaum.
15th " ...	1	Poona to Miraj.
20th " ...	2	Bombay to Masur, one Bombay Wala.
Total ...	6	
GRAND TOTAL ...	163	

R. A. LAMB,  
Chairman, Poona Plague Committee.



## APPENDIX 51.

*Daily statement of Plague cases and Corpses found by Cavalry and Infantry Pickets and Patrols.*

Date.			Plague cases found.	Corpses found.	REMARKS.
13th to 29th March	...	...	...	...	
30th March	...	...	8	...	
31st "	...	...	...	3	
Total			8	3	
1st April	...	...	...	1	
2nd "	...	...	...	...	
3rd "	...	...	7	...	
4th "	...	...	...	...	
5th "	...	...	6	...	
6th "	...	...	...	...	
7th "	...	...	13	...	
8th "	...	...	6	...	
9th "	...	...	3	1	
10th "	...	...	4	2	
11th "	...	...	...	...	
12th "	...	...	5	...	
13th "	...	...	2	1	
14th "	...	...	2	...	
15th "	...	...	1	...	
Total			49	5	
16th "	...	...	2	...	
17th "	...	...	2	...	
18th "	...	...	...	...	
19th "	...	...	3	2	
20th "	...	...	2	1	
21st "	...	...	1	...	
22nd "	...	...	2	1	
23rd "	...	...	2	...	
24th "	...	...	...	1	
25th "	...	...	...	...	
26th "	...	...	1	1	
27th "	...	...	3	2	
28th "	...	...	3	...	
29th "	...	...	2	...	
30th "	...	...	1	1	
Total			24	9	
1st May	...	...	3	...	
2nd "	...	...	...	...	
3rd "	...	...	2	1	
4th "	...	...	...	3	
5th "	...	...	1	1	
6th "	...	...	...	...	
7th "	...	...	1	...	
8th "	...	...	...	...	
9th "	...	...	...	...	
10th "	...	...	...	1	
11th "	...	...	2	...	
12th "	...	...	2	...	
13th "	...	...	...	...	
14th "	...	...	3	...	
15th "	...	...	4	...	
16th "	...	...	...	...	
17th "	...	...	...	...	
18th "	...	...	...	...	
19th "	...	...	4	...	
Total			22	6	
Grand Total, from March 13th to May 19th			103	23	

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 52.

*Statement showing number of Persons of each Community inoculated  
from March 25th to May 20th, 1897.*

Period.	Europeans and Eurasians.	Native Christians.	Pársis.	Bráhmíns.	Other Hindus.	Mahome- dans.	Total.
1	2	3	4	5	6	7	8
25th to 26th March ...	31	36	125	23	60	23	298
27th March to 2nd April ...	33	57	105	3	56	18	272
3rd April to 9th „ ...	...	34	104	...	70	14	222
10th „ to 15th „ ...	16	3	57	...	19	7	102
16th „ to 22nd „ ...	2	36	84	...	95	68	285
23rd „ to 29th „ ...	17	15	23	...	36	2	93
30th „ to 6th May ...	15	3	13	...	13	1	45
7th May to 13th May ...	16	2	9	...	17	...	44
14th „ to 20th „ ...	...	...	...	...	...	...	...
Total ...	130	186	520	26	366	133	1,361

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.

## APPENDIX 53.

*Statement showing the number of Troops by Corps, employed at the commencement of Operations, and the Additions and Reductions subsequently made in their Numbers.*

Variations.	R. A. and E. H. A.			D. L. I.			R. I. R.			2nd Bo. Lrs.			Bo. S. and M.				2nd Bo. Grs.				14th Bo. I.				19th Bo. I.				23th Bo. Prs.				Const. and Transport.				Med. Staff.			Total.		
	O.	N. C. O.	Grs.	O.	N. C. O.	Ptes.	O.	N. C. O.	Ptes.	O.	N. C. O.	Ptes.	B. O.	N. O.	B. N. C. O.	N. C. O.	Ptes.	B. O.	N. O.	N. C. O.	Ptes.	B. O.	N. O.	N. C. O.	Ptes.	B. O.	N. O.	N. C. O.	Ptes.	O.	W. O.	N. C. O.	Ptes.									
Marched in 12th March 1897	2	8	32	5	9	71	4	15	65	1	4	16	100	1	1	2	4	17	1	2	1	125	3	24	112	1	2	19	122	1	1	6	34	...	3	48	1	1	1	16	893	
Added 20th March 1897	1	3	27	1	7	48	1	5	51	...	...	...	...	...	...	4	36	...	...	...	...	...	...	...	...	...	...	...	...	...	4	26	...	...	...	...	...	...	219			
Total	3	11	59	6	16	119	5	20	116	1	4	16	100	1	1	2	8	53	1	2	1	125	3	24	112	1	2	19	122	1	1	10	60	...	3	53	1	1	1	16	1,112	
Reduced 6th May 1897	3	9	54	...	3	23	...	2	22	...	...	...	...	...	...	...	...	...	1	1	6	108	...	...	...	...	...	...	...	...	...	...	...	...	9	...	...	...	...	241		
Do. 13th May 1897	...	...	...	2	1	1	22	1	2	21	...	...	25	...	...	...	...	...	...	1	6	17	...	...	2	22	...	1	8	57	...	...	17	...	...	...	...	...	206			
Remain at close of military operations on 14th May 1897	...	2	3	5	12	73	4	17	66	1	3	16	77	1	1	2	8	53	...	...	...	...	1	3	22	90	1	1	11	65	1	1	10	44	...	3	44	1	1	1	16	660
Reduced between 20th May 1897 and 31st May 1897	...	2	3	5	10	63	4	15	65	1	3	15	69	1	1	2	8	53	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	536	
Remained on 21st June 1897	...	...	...	...	2	10	...	2	1	...	...	1	8	...	...	...	...	...	...	1	3	19	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	124	

Note.—Some small fluctuations in strength that occurred between March 20th and May 19th have not been shown.

R. A. LAMB,  
Poona Plague Committee.



## APPENDIX 54.

*Tabular Statements showing how Troops on Plague Duty were employed at various stages of the operations, containing particulars (with dates) of alterations made from time to time in the numbers and strength of the Search, Fumigating and Lime-washing Divisions, also particulars (with dates) of employment on other Plague Duties.*

1.

13 : 3 : 97.				
SEARCH.			BRIT.	NAT.
I Division	...	...	30	...
II "	...	...	30	..
FUMIGATING.				
I Division	...	...	10	20
II "	...	...	10	20
LIME-WASHING.				
I Division	...	...	30	10
II "	...	...	30	10
DISINFECTORS.				
I Party (Segn. Camp)	...	...	7	...
TOTAL	...	...	147	60
CITY GUARDS.				
1 Squadron 2nd Bombay Lancers.				
2 Companies Native Infantry.				
SEGREGATION PARTY.				
25 N. C. Os. and men, Native Infantry.				

2.

18 : 3 : 97.	
CANTONMENT SEARCH.	
1 N. C. O. and 6 men, British.	

3.

21 : 3 : 97.	
REORGANISED SCHEME.	
SEE TABLE B. OVER—Leaf.	

4.

1 : 4 : 97.	
REDUCTION OF FUMIGATING DIVISIONS FROM 3 TO 2.	
The men composing this Division were distributed amongst the existing Lime-washing Divisions.	

5.

9 : 4 : 97.	
REDUCTION OF FUMIGATING DIVISIONS FROM 2 TO 1.	
INCREASE OF CANTONMENT SEARCH TO 2 DIVISIONS.	
COMPOSITION.	
10 Parties to a Division.	
EACH PARTY—1 British, 2 Natives.	

6.

26 : 4 : 97.	
DEATH REGISTRATION & SUPERVISION OVER BURIAL GROUNDS AND GHATS BY 3 NATIVE OFFICERS, 24 N. C. Os. AND MEN, NATIVE INFANTRY UNDER 1 BRITISH OFFICER.	

7.

28 : 4 : 97.	
VILLAGE SEARCH	
Composition.	
2 Divisions of 10 Parties, Each Party 1 British and 2 Natives.	
LIME-WASHING REDUCED TO	
1 Division of 15 Parties.	

8.

4 : 5 : 97.	
VILLAGE SEARCH DISCONTINUED CITY SEARCH RE-CONSTITUTED.	
2 British and 1 Native per Party Instead of 3 British.	
MAIN PICQUET NATIVE INFANTRY DISCONTINUED.	

9.

13 : 5 : 97.	
CITY SEARCH DIVISIONS REDUCED TO SEVEN PARTIES EACH.	
REDUCTION OF FUMIGATING DIVISION TO 2 PARTIES.	
CANTONMENT SEARCH REDUCED TO 1 DIVISION.	

10

16 : 5 : 97.	
SANITARY INSPECTORS REDUCED TO	
2 N. C. Os. and 10 MEN.	

# REORGANIZED SCHEME.

21st March 1897.

Duty.	Division.	Officer.	FURNISHED BY						TRANSPORT.				Remarks.	
			R. A.	D. L. I.	R. I. R.	Bo. S. & M.	28th Pys.	14th Bo. I.	Nat. troops.	Officer.	Carts.	Am- bulance.		Flags.
Search	A	Capt. Murphy	}	104	76	18	...	...	12	{ Lieut. Dault.	1	2	Blue.	6 Divisions of 10 parties, each party of 3 men. 3 Sappers to each Division to lock up doors. 2 Native Infantry to each Division to watch the backs of houses.
	B	Lieut. Moore									1	2		
	C	" DeBerry									1	2		
	D	" Mander	}	...	...	...	...	...	...	{	1	2	Blue.	3 Divisions of 10 Parties, each party consisting of 1 R. A. and 2 Pioneers.
	E	" Cumming									1	2		
	F	" Wright									1	2		
Fumigating...	AB	Capt. Hansey...	}	...	...	...	60	...	...	{	10	...	Red.	3 Divisions of 10 Parties, each party consisting of 1 R. A. and 2 Pioneers.
	CD	Lieut. Mackenzie									10	...		
	EF	" Robb ...									10	...		
Lime-washing	AB	Lieut. Touge	}	...	30	30	...	60	...	{	11*	...	White.	3 Divisions of 10 Parties, each party consisting of 1 R. I. R., 1 Sapper and 2 Native Infantry. * 1 Empty cart to remove goods to warehouse.
	CD	" Montresor									11*	...		
	EF	" Molly ...									11*	...		
Disinfecting ... Med. Ofrs. Order- lies.	...	.....	}	3	3	...	...	...	...	{	...	...	...	
	...	.....									...	...		
	...	.....									...	...		
City Guards	...	Lieut. Crawford	}	...	...	...	...	...	...	{	...	...	...	† 1 Squadron, 2nd Bombay Lancers, 2 Companies Native Infantry.
	...	" Owen-Lewis ...									...	...		
	...	" Melville									...	...		
Segregating Guard	...	1 Nat. Officer...	}	...	...	...	...	50	...	{	...	...	...	
	...	.....									...	...		
	...	.....									...	...		
Warehouse Guard	...	.....	}	...	...	...	...	6†	...	{	...	...	...	‡ 1 to each Search Division, to show the way about the City.
	...	.....									...	...		
	...	.....									...	...		
Maharatta Guides	...	.....	}	...	...	...	...	...	...	{	...	...	...	
	...	.....									...	...		
	...	.....									...	...		
Cantonment Search	...	.....	}	9	9	...	...	...	...	{	...	...	...	
	...	.....									...	...		
	...	.....									...	...		
Sanitary Inspectors	...	.....	}	10	10	...	...	...	...	{	...	...	...	
	...	.....									...	...		
	...	.....									...	...		
Suburban Municipal Search.	...	.....	}	2	2	...	...	...	...	{	...	...	...	
	...	.....									...	...		
	...	.....									...	...		
Totals	...	...	39	130	131	48	60	6	129	...	69	12	...	

R. A. LAMB,  
Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 55.

*Statement of Guards on Hospitals and Segregation Camps, furnished  
by 19th Bombay Infantry.*

From 12th March to 13th May 1897.					From 14th to 16th May 1897.				
Guard at.	N. O.	N. C. O.	Ptes.	Remarks.	Guard at.	N. O.	N. C. O.	Ptes.	Remarks.
Sangam Hospital ...	...	5	42		Sangam Hospital ...	...	3	20	
Lakri Pul do. ...	...	3	14		Lakri Pul do. ...	...	2	6	
Mahomedan do. ...	1	5	30		Mahomedan do. ...	...	2	6	
Poona Segregation Camp .	1	6	36		Poona Segregation Camp .	1	3	24	
Cantonment do. do....	...	...	...		Cantonment do. do....	..	1	9	
Total ...	2	19	122		Total ...	1	11	65	

## APPENDIX 56.

*Statement of Night Picquets.*

Cavalry.  
2nd Bombay Lancers.

Infantry.  
14th Bombay Infantry.

From 1st April 1897.				From 7th April 1897.			
Post.	N.C.O.	Sowars.	Remarks.	Post.	N.C.O.	Ptes.	Remarks.
Transport lines ...	1	7		Sowar's Gate ...	1	4	
Treacher's old shop ...	1	3		Lukdi Pul ...	1	4	
Roman Catholic Church	1	3					
Sassoon Hospital ...	1	3					
Sangam Bridge ...	1	3					
Total ...	5	19		Total ...	2	8	

## APPENDIX 57.

*Statement of Transport and Ambulance showing Additions and Reductions.*

Variation.	Army Transport.	Ambulance Tongas.	Hired Transport.	Total.	Remarks.
Arrived 12th March 1897 ...	30	12	...	42	
„ 20 March 1897 ...	5	...	46	51	
Total ...	35	12	46	93	
Discharged 14th April 1897 ...	...	...	10	10	
„ 5th May 1897 ...	8	...	34	42	
Remain at close of operations on 19th May 1897 ...	27	12	2	41	

12th August 1897.

R. A. LAMB,  
Chairman, Poona Plague Committee.



## APPENDIX 58.

From

MAJOR A. DEB. V. PAGET,  
2nd Durham Light Infantry,  
Camp Commandant ;

To

THE CHAIRMAN,  
Plague Committee, Poona.

*Camp Parvati, 20th May 1897.*

SIR,

In accordance with your letter No. 1171, dated 15th instant, I have the honour to report as follows on the conduct of the officers and men engaged under my command in the operations for the suppression of the Plague in Poona from 12th March to 20th May 1897.

Conduct of the troops : (i) on plague duty. 1. (i) No complaints have been made against any of the officers.

With the exception noted below not a single valid complaint was ever brought against any of the British Non-Commissioned Officers and men at work in the city, cantonment and suburban areas.

A Corporal of the Durham Light Infantry was reported to me by the Cantonment Magistrate for neglect of duty and receiving money from a native.

I severely reprimanded him and sent him back to his corps.

Native. As regards the Native troops five cases of misconduct while at work in the city were reported to me as follows :—

(a) A Private in the 28th Bombay Pioneers was caught stealing a cloth from a house while fumigating it.

I sentenced him to 21 days' confinement to camp.

(b) A Private in the 28th Bombay Pioneers was reported for stealing a clock whilst engaged in fumigating a house.

I remanded him to his corps to be dealt with by his Commanding Officer.

(c) A Private in the 28th Bombay Pioneers was reported by the officer in charge of his division for assaulting the owner of a house which he was lime-washing.

I sentenced him to a week's imprisonment, forfeiture of 20 days plague pay, and sent him back to his corps.

(d) A Private in the 2nd Bombay Grenadiers was caught stealing Rs. 13 from a house while the search parties were at work. He was employed as a "watcher" at the back of the house but had no right to enter it. Part of the money was recovered near the place, and the rest was stopped from the plague pay due to the man.

I remanded him to his corps to be dealt with by his Commanding Officer.

(e) A Lance Naik and 3 Privates of the 2nd Bombay Grenadiers, who were on guard at the warehouse were reported for stealing property entrusted to their charge.

On investigating the matter there appeared to me to be a *prima facie* case against the Lance Naik and one of the men, as the property was discovered rolled up in their bedding I therefore applied, in accordance with Section 13 of the Indian Articles of War, to try them by a Regimental Court Martial. The case was apparently submitted to the Deputy Judge Advocate General, Bombay Command, by the Officer Commanding Poona Station, and on receiving his report, I found it impossible to proceed further in the matter. The men who had been in arrest for three weeks were therefore released from confinement, and sent back to duty with their corps.

(ii) As regards the conduct of the troops in camp, it has been very good. The officers have all maintained a proper discipline in their detachments.

British. There has been a little drunkenness amongst the British, which was only to be expected with such a quantity of money at their disposal, and so little opportunity for recreation. I gave facilities by granting passes to cantonments for the men to put there spare money in the Post Office Savings Bank, and many availed themselves of this privilege. I also furnished a tent for members of A. T. Association.

No insubordination or crime of a serious nature has taken place.

I availed myself of the powers given me by the Plague Committee and stopped any man's plague pay for absence from work on account of drunkenness or misconduct. A few men whom it was not deemed advisable to keep in camp were sent back to their corps for exchange.

I would like especially to mention the excellent conduct of the Non-Commissioned Officers and men of the R. H. A. and R. A. Only 2 men were reported to me during the whole time they were in camp.

Native.

I cannot speak too highly of the conduct of the native troops in camp, and it was a real pleasure to me to be so closely associated with them.

Only one serious case of misconduct occurred, that of a Private in the 2nd Bombay Grenadiers who assaulted a comrade with an axe. I sent him in to be dealt with by his Commanding Officer.

2. As regards the general conduct of the troops on plague duty, I have daily accompanied them in their operations, and I consider they have all worked hard and well. The utmost keenness has been shown

General Conduct.

by both officers and men and I feel sure they have done their best to carry out the instructions of the Plague Committee.

An earnest endeavour has also been made to carry out the work with due regard to the feelings of the inhabitants, and the prejudices of caste and Native customs.

Considering the peculiar nature of their work and the time the operations lasted I think their conduct could hardly have been better.

I attach reports (Appendix I) from most of the officers as well as from Mr. Plunkett, C. I. E., the Cantonment Magistrate, and Surgeon-Major Barry, I. M. S., who all testify to the excellent conduct and good work of the men.

3. The work of the search parties, chiefly carried out by men of the Durham Light Infantry and Royal Irish Rifles was, I think, efficiently done, as witness the number of cases and corpses discovered by them.

Search parties.

The work entailed a great amount of fatigue in constantly entering houses, going up and down stairs, and poking about in all the hooks and crannies. All the officers engaged on this duty worked hard and exercised a proper supervision over their men, and no cases of misconduct were substantiated.

In addition to the city, cantonment, and suburban areas, 31 villages in the surrounding county were searched by parties from this camp. This sometimes entailed a march of 8 or 9 miles on the part of the men before work commenced. (Appendix VIII.)

4. The work of fumigating and lime-washing was done by men of the Royal Artillery and

Fumigating and Lime-washing.

Sappers and Miners, and R. I. R. and 28th Bombay Pioneers. It entailed some hard work and destruction of clothing on the part of the men. The parties being frequently separated and not under the eye of an officer, I think it is very creditable that so few cases of misconduct have occurred.

I would mention Captain Hussey, R. H. A., Lieutenant Mackenzie, 28th Bombay Pioneers, Lieutenant Touge, R. E., and Lieutenant Molloy, R. I. R., as doing good work on this duty (Appendix VIII.)

5. I would bring to notice the good work done by the men of the 2nd Bombay Lancers under Lieutenant Crawford (and Doreton for a short time).

Cavalry.

Both these officers were very energetic. The men were engaged on night duty, and one-fifth of the cases and corpses reported by the troops passed constantly through their hands.

6. I would mention the good work done by Lieutenant Owen Lewis and the men of the 14th Bombay Infantry in segregation duty. This officer was most energetic, and his men were ever ready to turn out

Segregation party.

at all hours and accompany him on his rounds.

7. I would also mention the name of Surgeon-Lieutenant Kiddle, A. M. S., who, in addition to the medical charge of a large camp, accompanied the search divisions daily, and also had the oversight

Medical Officer.

of the Mahomedan hospital (Appendix VII).

8. As Transport Officer Lieutenant Daunt, R. I. R., was of great assistance to me.

Transport Officer.

The daily parading and marshalling (in the dark) in their proper order, of the transport for the several divisions, amounting as it did for some time to no less than 81 vehicles, was in itself a feat requiring great tact and management. On no occasion was there the slightest hitch, which is very creditable considering the cramped space available for carts in camp and the fact that a large amount of it was hired and had undisciplined drivers.

In this work he was ably assisted by Sergeant Ross, R. E., on whom the work devolved daily of preparing and loading the carts with the fumigating and lime-washing materials. (Appendix V.)

9. Captain Morphey, R. I. R. and Captain Hussey, R. H. A., in addition to good work in the city, &c., gave me great assistance in camp. The Cantonment Magistrate reports Captain Hussey, R. H. A., Lieut.

Captain Morphey, Captain Hussey, Lieut. Deas, Lieut. Molloy-

Deas, 19th Bombay Infantry, and Lieutenant Molloy, R. I. R.,

for good work in Cantonments (Appendix I.)



10. In conclusion I desire to specially mention the excellent work of Captain Iremonger, Durham Light Infantry, who as Adjutant and Quarter-Master was of the greatest assistance to me. All the detail of the work in connection with the operations fell on him. The punctual parading of the various working parties in the morning, the correspondence and office work, the routine of Camp life, as well as the cleanliness and good order of the Camp were carried out to my entire satisfaction. On several occasions he commanded a search division in the city and did good work.

11. Finally it is a great satisfaction to me to report that no case of plague occurred amongst the troops or followers who were daily in contact with cases and infected houses. I attribute this in a great measure to the careful inspection of the men by the medical officer previous to work and to the officers enforcing my orders regarding other precautions to be taken.

12. The heat of the weather at times was very great. The thermometer often being at 108° in the tents, but with the exception of one man of the Royal Irish Rifles who, I regret to say, died from sunstroke, the health of the troops was excellent (Appendix VII).

Appendices.  
II.—53.  
III, IV.—54, 55, 56.  
V.—57.  
VI.—59.  
VII.—60.  
VIII.—61.

13. I attach Appendices II, III, IV, V, VI and VII in accordance with paragraphs 2, 3, 4, 5 and 6 of your letter before mentioned. Also Appendix VIII showing a summary of work done by the troops.

I have the honour to be,

Sir,

Your obedient Servant,

A. DEB. V. PAGET, Major,

Second Durham Light Infantry, Camp Commandant.

#### APPENDIX 59.

*Statement of Orders issued to Troops regarding their work and conduct exclusive of those contained in printed instructions.*

*Date 13th March 1897. Orders.*—The General Officer Commanding confidently trusts that the Officers, Non-Commissioned Officers and men (British and Native) will, while carrying out with firmness, whatever work may be allotted to them, show the greatest consideration to the customs and prejudices of the Natives with whom they may have to deal, thereby winning their confidence and upholding the reputation of the Army for good discipline.

*14th March. Watchers.*—Six intelligent men to be attached to each Search Division to watch back entrances and streets during the search.

*15th March. Closing up doors broken open.*—A few Sappers to be detailed to each Search Division with hammers and staples for closing doors which have been broken open.

*16th March. Breaking open of boxes.*—Men to be warned not to break open boxes unless they have reason to believe there is a corpse in it.

*Fires.*—Men warned not to destroy any property by fire unless ordered by an officer to do so.

*17th March. Instructions to working parties.*—Search parties when marking an infected house to add the date.

Fumigating parties to thoroughly disinfect all houses in which dead rats are found by washing the houses freely with mercury solution. Rats to be burnt outside the house. When washing out a room all clothes and the contents of the room to be left about, room to be well soaked in the fluid, big articles of clothing to be soaked in the pails.

Fumigating and lime-washing parties warned that they are on no account to break open cupboards or boxes.

*18th March. Lime-washers.*—The interiors of houses only to be lime-washed and not the exteriors.

Instructions how lime-washing parties to proceed on reaching sections, *i.e.*, lime-wash the first 10 houses which he considers requires it, and then search for remainder on list.

*23rd March. Search Parties.*—That Officer Commanding Search Divisions should daily impress on their men the necessity of searching every nook and cranny in each house entered



*24th March. Ware-house guard.*—From to-night a military guard of one Non-Commissioned Officer and three Privates, Native Infantry, to be furnished day and night over the segregation warehouse in the city.

*Fumigation.*—The very careful attention of Officer Commanding Fumigation Divisions called to paragraph 3 of their instructions. Officers must not listen to statements of people in a house as to a case not having occurred there. As in most cases the people are lying. All houses marked with a vertical red line, or which appear on the list, must be fumigated and the occupants, if any, be sent to the Segregation Camp. The only cases in which houses on the list need not be fumigated are—

(a) When they have not been inhabited since date of last fumigation; this date would appear on the Municipal mark.

(b) When a City Sanitary Inspector assures the Officer Commanding Division that no case has occurred in the house.

*Medical.*—Officer Commanding the Search Divisions informed that on occasions when the Native Doctor says that a case is *not* one of plague the opinion of a British Medical Officer is to be obtained before letting the case go.

*25th March. Medical.*—The services of the Native Doctors have been dispensed with and from to-morrow each British Medical Officer will be in charge of two divisions. Surgeon Captain Beveridge will arrange for the re-distribution of Medical Officers, and each Medical Officer will arrange with Officer Commanding Search Division as to the spot where he is to be found.

*1st April. Cavalry Patrols.*—No corpse should be stopped if the persons in charge of it have a certificate of registry of death.

If the persons in charge of a corpse have no certificate of registry, one of the party should be handed over to the police at the nearest chowki, and the rest of the party with the corpse allowed to proceed.

When the Cavalry find a sick person they should send him to the "Sangam" Plague Hospital, where he will be examined by the Hospital Assistant and admitted or discharged according to the result of the examination.

Segregation of the healthy is no part of the duty of Cavalry employed by night.

*26th March. Search.*—When the soldiers of a search party do not enter the god-room or cook-room of a house they should look into these rooms from the doorway and require all persons inside them to come out for inspection, either by the men of the party or (if the people of the house wish it) by a lady searcher.

If there is no native gentleman with the party and the soldiers cannot ascertain that these rooms contain no sick persons, unless they enter them, these rooms must be searched in the same way as the rest of the house.

*Lime-washing.*—Officer Commanding Divisions should go if possible to each house that is to be lime-washed and decide what property, rafters, mats, &c., are to be destroyed.

When property of any value to the owners is destroyed by a lime-washing party the Officer Commanding the Division should note the approximate cost of replacing what has been destroyed in order that compensation may afterwards be paid.

*Search and Segregation Squads.*—Officer Commanding Search Divisions and Segregation Squads should be told to bring to the notice of people about to be segregated the advisability of taking with them cooking pots, bedding, change of clothes, &c., &c.

*Lime-washing.*—Calling attention of Officer Commanding Lime-wash Divisions that bontires are not to be made.

*3rd April. Orders.*—Instructing that when a party visits a house one man should go to the back.

The inmates should be required to come out in front of the house and should there be inspected. The soldiers should then enter and search the house, observing the rules relating to god-rooms and cook-rooms. If it contains purdah women and the owners object to this, they should be inspected in a well lighted room by a lady searcher.

*5th April. Search.*—Instructing that one inmate of the house must accompany the men while the house is being searched. The Sappers of the party not to enter the house.

*5th April. Search.*—Instructing Officer Commanding Search Divisions not to disinter corpses without the orders of a Medical Officer.

*8th April. Cavalry Patrols and Picquets.*—Instructing Cavalry and Native Infantry that sick persons found by the picquets and patrols should be removed to hospital with as little delay as possible.

*Search Parties.*—Informing Officer Commanding Search Divisions that the orders regarding the assembling of all the occupants of a house outside in the street are rescinded and that the former procedure of searching is to be reverted to.

10th April, *Medical*.—Informing all officers on plague duty that with the exception of persons sent to hospital by the night picquets, no persons are to be sent either for admission or observation except on admission orders signed by the following :—

Surgeon-Captain Beveridge.  
 „ „ Lloyd Jones.  
 „ Lieutenant Kiddle.  
 Doctor Miss Bernard.  
 „ „ Crawley.  
 „ „ Mackintosh.

14th April, *Medical*.—Instructing that no more persons be sent to the Mahomedan Segregation Camp.

All persons segregated to be sent to the General Segregation Camp at Sowar's Gate.

21st April, *Segregation*.—Instructions as to segregating persons—the only people to be segregated are those in the house in which a case has occurred.

In the case of a chawl all the residents of the other rooms in a chawl are only to be segregated on a medical officer's recommendation.

26th April, *Limewashers*.—All rubbish found in the house should then be burnt, but no property of any value to the inmates should be destroyed except under the orders of a medical officer.

17th May, *Segregation*.—The officer in charge of the Segregation Party is directed not to segregate the inmates of a house more than five days after a plague patient has been removed from there or a death has occurred.

16th April, *Working Parties*.—Officers will warn their men on no account to go into the Police Lines in the City either at the Old Jail or at Sanwár Wáda.

Article of clothing, &c., sent to the Warehouse should invariably be accompanied by a note whereon is given the owner's name and address.

(True Copy)

R. A. LAMB,

Chairman, Poona Plague Committee.

12th August 1897.

## APPENDIX 60.

### MEDICAL.

*Report on the health of the Troops employed on Plague duty in Poona from March 12th to May 19th.*

#### British.

*Number of Admissions to Hospital*—70; of these cases, Ague gave 23, Toncillitis gave 10, and simple continued Fever gave 9.

The remainder were mostly slight wounds and abrasions which were admitted to expedite healing.

*Number of Transferred to other hospitals*—12, of these, eleven were cases not caused by camp life or plague duty but were sent in as they required lengthy treatment.

The twelfth was a case of heat apoplexy, caused, it is believed, at the Segregation Camp when the man (out of the R. I. Rifles) was employed on disinfecting duty. He had been suffering from ague for three days (?) and then not reporting sick and probably working without his helmet the sun "struck" him. He died two days after.

A large number of men attended hospital for one or two days, each suffering from ague chiefly, but these numbers were not any larger than would have occurred normally at the Station Hospital.

One man was only sent back as not fit for the duty. He was very anæmic and was the subject of S. C. fever shortly after coming out to camp.

At parade before marching into the City, men have frequently been stopped from work for ague. These, however, have been fit again in a day after treatment and ease.

#### Native Troops.

*Total admissions to Hospital*—19; of these cases

Simple continued fever gave...	...	4 cases.
Injuries sustained on duty in City	...	2 „
„ otherwise...	...	3 „
Ague	...	1 case only.
Rheumatism	...	2 cases.
Dysentery	...	2 „

The others were cases of itch, pneumonia and more except the two injuries mentioned were the result of plague duty.

Very few men have attended hospital for minor complaints, and in no case of this sort was a man detained for more than two days.

*Number of transfers to other Hospitals—7.*

These were transferred for some reason, only one injury case being so treated.

On the whole I consider that the health of the troops has been excellent. The men were exposed to the sun very much at times and were under canvas during very hot weather, but only one case of heat-stroke has occurred, and that was in all probability due to carelessness. The regular hours, good feeding and whatever amusements they have been able to indulge in have kept the men in good health and spirits, and in my opinion not the slightest harm has occurred to any man who has been employed on plague duty in this camp from the arduous duties they have been employed in.

(Signed) F. KIDDLE, Surgeon-Lieut., A. M. S.,  
Medical Officer, Segregation Camp.

*Camp Parbutti, 19th May 1897.*

(True Copy)

R. A. LAMB,  
Chairman, Poona Plague Committee.

*12th August 1897.*

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APPENDIX 61.

*Statement of work done by the troops employed on Plague duty at Poona, from  
13th March to 19th May 1897.*

*City (including Bhamburda).*

Searched 10 times—total number of house-visitations	...	218,069
Number of plague cases reported by the troops	...	439
"    corpses	...	87
"    houses fumigated	...	1,916
"    "    limewashed	...	3,070

*Suburban Municipality.*

Number of bungalows and houses searched weekly—635.

*Cantonment.*

Number of bungalows and houses searched daily	...	3,448
"    plague cases reported by the troops	...	23
"    corpses	...	5

*Villages.*

Number of villages searched by the troops—30.

(Signed) R. A. LAMB,  
Chairman, Poona Plague Committee

*12th August 1897.*



**Memorandum on the System of carrying out Disinfection during the recent Plague Operations in Poona. (From March 13th to May 29th, 1897.) By W. W. O. Beveridge, M.B., Army Medical Staff, Member, Poona Plague Committee.**

The measures recently adopted in Poona during the plague epidemic to destroy the bacilli of plague in infected houses, among clothes, grain and other articles of domestic use, consisted of—

**I.—Disinfection—**

By chemical disinfectants { a. Fumigation.  
b. Spraying with germicides.

**II.—Lime-washing—**

Including treatment of floors and privies.

**III.—Disinfection by heat—**

- a. Burning of infected clothing, rags, &c.
- b. Exposure to direct sunlight.
- c. Boiling clothes for period of 15 minutes.

*Composition of Disinfection Parties.*

Parties.	Officers.	British Troops.	Pioneers.	Carts.	Distinguishing letters.	Distinguishing flag.
10	1	10	20	10	A B C D E F.	Red.

Disinfection—

Constitution of Parties.

To carry out these measures efficiently it was found necessary to organise a complete disinfecting and lime-washing staff with the required transport and materials ready to hand.

In connection with the military arrangements were attached three divisions of ten parties each and thirty equipped carts for disinfecting duty.

Each of the search divisions was attended by one of these parties with a cart, ready for the immediate disinfection of an infected house, on a case of plague or a corpse being found by the searchers. The remainder of the parties worked in various divisions of the city, disinfecting houses from lists supplied daily to the officer in charge.

Every party consisted of one European and two native soldiers, who were previously instructed in their duties and taught the manner of carrying out disinfection by the various methods adopted.

For convenience, a supply of disinfectants was kept at the Military Camp at Párwati, in order that the carts as they came in should have the expenditure of material checked and the supply kept up ready for the next day's use. These arrangements were under the charge of two Sergeants of the Royal Engineers assisted by a few soldiers.

Contents of Disinfecting Carts.

The contents of each cart were as follows :—

Contents.	Number.	Remarks.
Acid, Carbolic ... .. Bottles	2	One lb. each.
Acid, sulphuric ... .. "	1	"
Acid, hydrochloric ... .. "	1	"
Chloride of lime ... .. Lbs.	20	For disinfecting privies.
Powders in tin boxes "disinfecting," per-chloride of mercury and salt ... ..	40	Marked "For disinfection" one to a pail of water.

Contents.	Number.	Remarks.
"Fumigation," black oxide of manganese and salt ... ..	10	Marked "For fumigation."
Pumps, brass ... ..	1	
" Chinese, wooden ... ..	2	
Tin with paste ... ..	1	
Measuring glass, 4 oz. ... ..	1	
Brushes, paste ... ..	4	
" paint ... ..	1	
Chatties for fumigating ... ..	4	
Pails, galvanized iron ... ..	4	
Lamp ... ..	1	
Wooden box with partition for acids ... ..	1	Interior painted white.
Kerosine oil ... .. Lbs.	1	
Paper for pasting ... ..	2	For burning bedding, &c.
Paint, red ... .. Lb.	$\frac{1}{2}$	
Pan for carbolic lotion ... ..	1	
Red flag, distinguishing ... ..	1	

It was found that very few of the houses in Poona City lent themselves to fumigation owing to the impossibility of completely closing all the numerous crevices and openings. Many of the houses were mere mud huts, with open roofs composed of bamboo-rafters and loose tiles, and most, instead of window sashes, had square openings, with wooden or iron bars, and it was next to impossible to prevent the egress of the gas used.

To obviate this difficulty, disinfection by means of spraying was instituted and the fumigation reserved for shops full of wares.

The process of fumigation was carried out by the employment of chlorine gas.

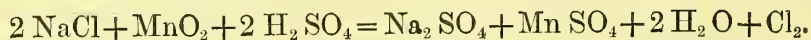
After all crevices in the room had been carefully blocked by means of paper pasted over them, the whole interior and contents were rendered moist by means of a hand pump, and all clothes and other articles distributed or hung about the room. A chattie or earthen-ware pot, was then taken and placed as high up as circumstances would permit, having regard to the density of the gas to be used; four ounces of water and two of strong commercial sulphuric acid (which immediately generated heat) and a fumigation powder were then poured in.

For convenience each of the carts was supplied with a number of these powders ready for immediate use which consisted of—

Black oxide of manganese ( $\text{MnO}_2$ ) 1 oz.,  
Sodium chloride ( $\text{NaCl}$ ) 4 oz.,  
mixed together, made up in packets, and labelled "For fumigation."

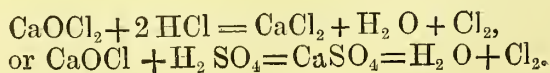
This quantity was for 1,000 cubic feet of room space.

According to the formula —



This method was found the most convenient in practice, as being easily worked and less bulky than the method with bleaching powder and a mineral acid, all the chlorine gas also being obtained.

The other methods consisted in pouring  $1\frac{1}{2}$  pints of hydrochloric acid or  $\frac{1}{2}$  pint of strong sulphuric acid on to one pound of chloride of lime ( $\text{Cl}_2\text{O}_2\text{Cl}_2$ ), thus :—





The quantities of acid required to be carried in operations such as these were against this process, but the action is distinctly rapid. The house was then left undisturbed for 6 hours.

In each cart were also a number of powders marked "For disinfecting," these consisted of 280 grains of perchloride of mercury ( $\text{HgCl}_2$ ) with sufficient salt, to render the mercurial salt soluble in water on being added to the pails used. These powders containing 2 gallons, gave a solution of 1 — 1,000. By means of these the thorough disinfection of houses and contents was carried out. One ounce of the salt will disinfect over 3,000 square feet at a small cost. On a case of plague being removed the bedding and any other garments soiled by discharges, &c., from the patient were burnt in the street and the remainder left in the house. The whole interior and contents were then thoroughly washed down and soaked with the perchloride of mercury solution by means of Chinese wooden hand-pumps, which gave an efficient spray of considerable force, and being made of wood, were not acted on by the salt or mercury. As, at the time it was impossible to procure wooden pails and the mercury from the perchloride was deposited on the metal, corroding it and also rendering the solution inert, the interior of the galvanized iron pails used were coated with a layer of white paint which entirely obviated this difficulty. In some instances a 5 per cent. solution of carbolic acid was used, the crude acid being made mixable with water by the addition of soft soap. This was the method chiefly adopted in the Cantonment; but of the two processes the perchloride is undoubtedly the one mostly to be relied upon, being more cleanly to use, easier to work, and less expensive. All that is necessary is to have the powders containing the perchloride ready mixed with some chloride, such as sodium chloride, the least expensive ammonium chloride, &c., which renders it soluble, and the powders are thrown into the water and used at once. The wet method by spraying over the gascons has the advantage, that every nook and cranny can be reached by the solution, which is thrown with considerable force, all articles being soaked by it are penetrated and the germs destroyed; whereas in fumigation the more resistant germs, and those not freely exposed, lurking among the folds of cloths, behind partitions, &c., are not reached by the gas. The objection of having to close up the house and render it air-tight is also obviated. In the class of house in Poona where the floors are chiefly composed of cow-dung, the penetration through the floor is considerable, although some of its effect may be lost by contact with organic matter throwing down an inert precipitate. The proportions suggested by the Local Government Board are  $\frac{1}{2}$  oz. of mercuric chloride, 1 oz. of hydrochloric acid and 5 grs. of commercial aniline blue in three gallons of water, costing about 3d. At first this was the basis of the solution used in Poona, but it was found inconvenient to carry the hydrochloric acid and so a chloride was substituted, which answered all requirements.

## II.—*Lime-washing.*

All houses after disinfection were thoroughly lime-washed inside, and for this a mixture of half quick-lime, care being taken to use only the best, and half chloride of lime, was used. An effort was made to lime-wash all the houses possible in such a large area (four square miles), and especially those which had been shut up on the inmates fleeing the city and which, there being no means of telling, were possibly many of them, infected houses, the cases having been removed. On return of the people there was danger of re-infection from this cause.

There were organised three divisions of lime-washers of ten parties each, a party consisting of one European and three Native Sappers, under an officer and with an equipped transport of 30 carts. A daily list of houses to be lime-washed was supplied to the officer in charge, and the parties worked a day behind the search parties and disinfectors.

All rubbish found in the houses, especially old rags, numerous in every house, were burnt, but no property of any value was destroyed, except under the directions of a Medical Officer. After carefully lime-washing the interiors, the floors were dug up for a depth of four inches and saturated with a solution of chloride of lime in water; all privies attached to the houses were similarly treated.



The house was left standing open for at least ten days and no fresh cases of plague, as far as can be discovered, other than those brought in for the sake of concealment, occurred in houses thus treated, on the return of the occupiers.

The total number of houses lime-washed was 3,068 and those disinfected 1,916. This does not include Municipal work or Cantonment.

All houses without efficient ventilation, which was the rule, had square holes 2 feet  $\times$  2 feet knocked in the walls, and, where necessary, tiles were removed from the roofs to let in air and sunlight. The dryness of the climate rendered this possible. In some cases it was necessary to burn the thatch roofs full of filth, as capable of no other treatment. In one settlement, Bhokarvadi, containing about 150 small low castle-walled thatched dwellings, crowded together, reeking of filth, only equalled by the inhabitants, where the plague was rampant, the whole settlement was unroofed, the roofs burned being full of filth and vermin. The interiors and exteriors were lime-washed and the floors removed, with the result, that, on the inhabitants being allowed to return at once, having nowhere else to go to, no case of plague occurred.

### *III.—The treatment of Grain.*

This was a question of difficulty, especially in large grain stores which had been infected by the rats being affected by the plague. The treatment of Grain, &c. rats in Poona, as far as my experience goes, were not in excessive numbers, certainly not so numerous as in Hongkong in 1894. In many stores dead rats were found in every state of decomposition—from those just recently dead to those dried and hardened to the brittleness of a biscuit. Their coats were in many instances staring and dull, and abdominal swelling was frequent, this before post-mortem change could have affected it. It was thus necessary to remove all the grain, to dig up, as far as possible, runs and holes, and in doing this, many more corpses of rats were found, and to thoroughly disinfect and lime wash the premises and yards attached. Any grain that had been in actual contact with infected persons, corpses or dead rats was ordered to be burnt, but in practice this was luckily hardly ever necessary. The grain on being removed from the stores was required to be placed in the sun for a whole day or longer, and in this way sufficient protection was afforded. In a complete block of grain stores in Nana's Peth, where several cases of plague had occurred, and where many rats dead of the disease were constantly being discovered, the whole of the grain was removed, exposed to sunlight, and the premises lime-washed and floors re-made.

On being re-occupied no further cases of plague occurred, nor were any more dead rats found. It seems evident that this method of treating grain from infected houses is sufficient. Again in the case of tobacco, where much valuable stock might be destroyed, it is only necessary to expose to direct sunlight for the day. Grain is usually cooked before eating and tobacco burned in process of consumption.

In the case of cloth merchants, tailors, &c., all rags, which were regarded as most dangerous in harbouring contagion, were taken from their shops, when infected and burnt, the other contents were fumigated and afterwards exposed to sunlight. Fortunately not many shops were infected in Poona, partly from their owners having fled the city, removing their wares also.

### *Treatment of infected Clothes, Bedding, &c., at the Government Segregation Camp.*

A part of the segregation camp near the entrance was specially set apart for disinfection of clothing, bedding, &c., brought in by those segregated and consisted of a shed, containing three large iron cauldrons with fires beneath for boiling clothes, also six cauldrons of perchloride of mercury 1—1,000 solution coloured with aniline blue. Around was railed off a portion of ground for the drying and exposure to sun of articles there treated.

These operations were under the care of a military party, consisting of one non-commissioned officer and 5 men, whose duty it was to immediately disinfect the property of those segregated. On being removed from their houses the people were allowed to bring with them a change of clothing, bedding,

cooking pots, money, &c., ample time being allowed them to collect these articles and make arrangements before they were conducted off.

On arrival at the camp the people were desired to take a carbolic bath which there was no trouble in their acceding to. All clothes and other articles which were not liable to be injured by the process were at once boiled for the period of 15 minutes, a temperature of 100°C. being sufficient to kill the plague bacillus, and were afterwards spread out in the sun to dry. Other articles were sprayed with perchloride of mercury and exposed to sunlight.

The sheds occupied by the segregated were separated from one another by ample space, each contained two rooms, and on a case of plague occurring could be evacuated without inconvenience. The whole shed was disinfected with perchloride of mercury solution 1—1,000, the floors removed and re-made and the shed allowed to remain unoccupied for 10 days. No cases re-occurred in these huts. The clothes of the Police burying parties were also treated at the segregation camp in a similar manner.

#### *Disinfection of Ambulances.*

The ambulance carts used in the operations were kept in a separate part of the Military Camp at Parwati, and each day on their return were subjected to a thorough disinfection and washing with carbolic lotion (1—20). Strict orders were enforced to prevent any one, other than the sick, from riding in those carts. Public conveyances, which by any chance were used to convey patients to the hospitals, were detained there and thoroughly disinfected either with perchloride of mercury solution or carbolic.

#### *Precautions taken with regard to the Troops employed on Plague duty.*

Only those men who were temperate and in good health were selected. A medical inspection took place every morning, and those who showed signs of ill health, fever, debility, or who were suffering from cuts or abrasions were retained in camp until well, their places being taken by others.

On return of the troops they were again inspected and required to immediately change their clothes, which were then hung up in the sun for the day, and to take a bath. After this they had a good meal and rested for the remainder of the day. Before starting in the morning, also, each officer and man had a substantial meal. Should any man receive a cut or an abrasion whilst working, he at once bathed it in carbolic lotion, some of which was carried by each search party.

Each Medical Officer in charge of the search divisions was provided with some disinfectants wherein to rinse his hands after examining a plague case or corpse.

It is not claimed that these precautionary measures were absolutely the cause of there being no case of plague among the whole body of troops engaged in the plague operations, but there is no doubt that they went a long way to prevent contagion, and I would be sorry to put any men into actual contact with a highly contagious disease, such as plague, and in plague environments, without these precautionary measures being strictly enforced. It was a source of gratification that during the whole of the operations these precautions were never relaxed, which reflects the highest credit on both the officers and men.

It is to be regretted that in a large city such as Poona no steam disinfector existed such as is in common use in almost every town and village in England and most of the colonies. Had there been one, it would have been of immense value in the treatment of infected clothes, saving time and labour.

Fortunately there was a sufficient supply of disinfectants, and it is as well to avoid multiplying their kind, as there is a tendency to. The disinfectants which were practically sufficient for all purposes were perchloride of mercury, carbolic acid and bleaching powder. The experience of such disinfectants as creasotine and phenyle is not of the exact scientific value to justify their substitution for either the corrosive sublimate or carbolic acid. Carbolic powder, so frequently seen used, should in plague operations be replaced by the use of bleaching powder.

W. W. O. BEVERIDGE, M.B.,

Surgeon-Captain, A. M. S.



Date.	Houses Dis- infected.	Remarks.	Date.	Houses Dis- infected.	Remarks.
March 13 ...	14	Two disinfecting divisions of 10 parties each. Found 2 cases and one corpse. Increased to three divisions of 10 parties each. Found one corpse.	April 16 ...	21	One case found;
15 ...	46		17 ...	28	
16 ...	49		19 ...	48	
17 ...	65		20 ...	18	
18 ...	75		21 ...	12	
19 ...	81		22 ...	12	
20 ...	50		23 ...	14	
22 ...	168		24 ...	10	
23 ...	56		26 ...	16	
24 ...	86		27 ...	20	
25 ...	103	Two divisions.	28 ...	12	Two parties only.
26 ...	72		29 ...	9	
27 ...	101		30 ...	9	
29 ...	74		May 1 ...	12	
30 ...	81		3 ...	11	
31 ...	54		4 ...	7	
April 1 ...	37		5 ...	12	
2 ...	42		6 ...	6	
3 ...	54		7 ...	7	
5 ...	44		8 ...	4	
6 ...	43	One division.	10 ...	7	
7 ...	9		11 ...	7	
8 ...	27		12 ...	7	
9 ...	36		13 ...	5	
10 ...	27		14 ...	1	
12 ...	29		15 ...	4	
13 ...	16		17 ...	4	
14 ...	18		18 ...	Nil.	
15 ...	24		19 ...	Nil.	

*Estimate of Disinfectants expended in the Plague Operations from March 13th to May 20th, 1897, including City, Cantonment, Segregation Camp, Hospitals and Suburban Municipality.*

Name of Disinfectant.	Quantity used.	REMARKS.
Lime, quick ... ..	Tons. 49 <sup>15</sup> <sub>20</sub>	= 5 gallons each. = = "
„ chloride ... ..	„ 10 <sup>5</sup> <sub>20</sub>	
Perchloride of mercury... ..	Lbs. 1,185	
Manganese, di-oxide ... ..	„ 480	
Acid, hydrochloric ... ..	Jars. 12 <sup>1</sup> <sub>4</sub>	
„ sulphuric ... ..	„ 17	
„ carbolic ... ..	Drams. 89	
Permanganate of potassium ... ..	Lbs. 10	
Sodium, chloride ... ..	„ 284	
Other disinfectants used in hospitals not included.		



*Contents of Lime-washing Carts.*

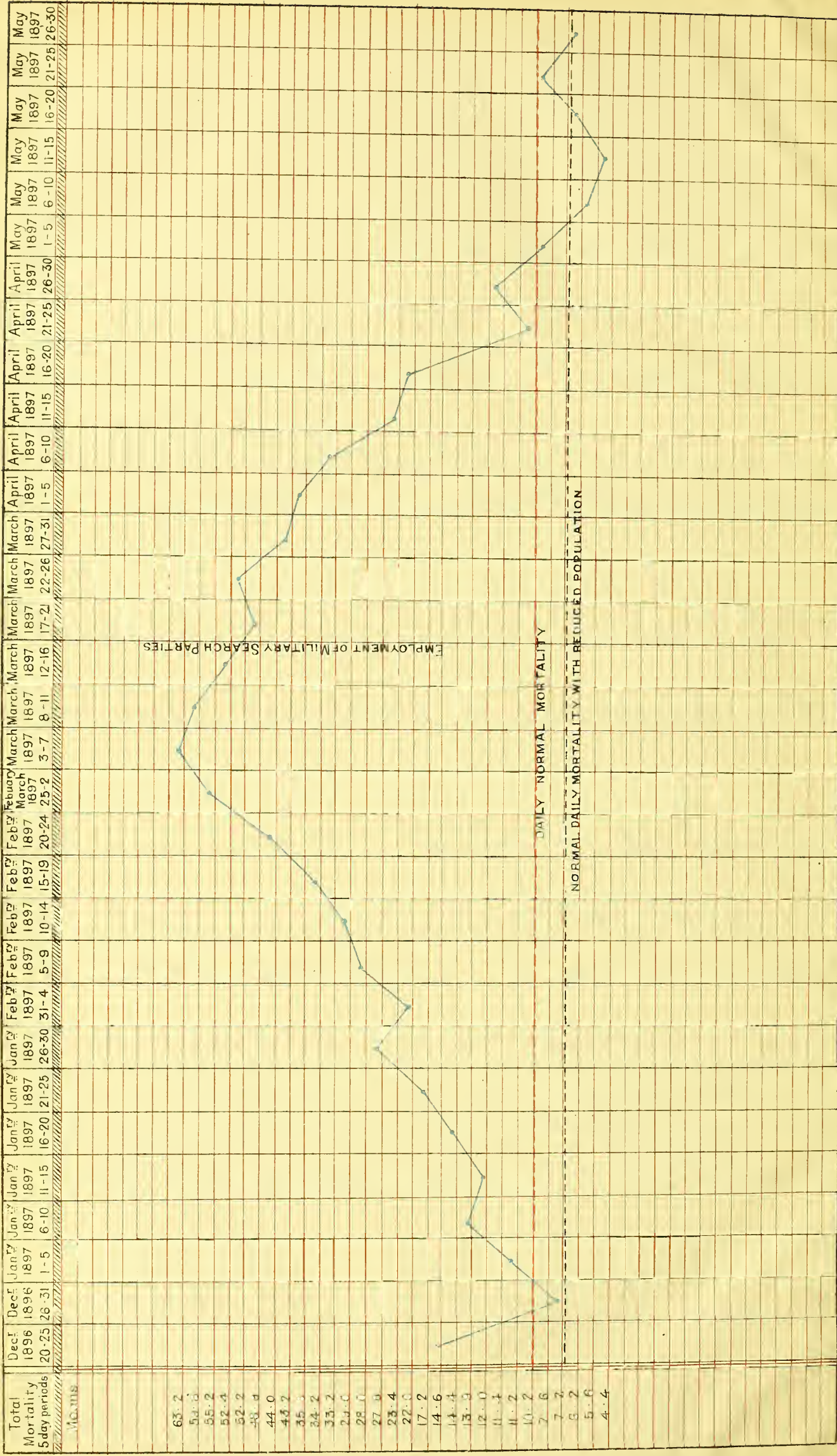
Articles.				Number.	Remarks.
Lime-washing tubs	...	...		1	Half band.
Pails, zinc	...	...		4	
Brushes, lime-washing	...	...		4	
„ paint	...	...		1	
Brooms, sweeping	...	...		4	
Ladders, bamboo	...	...		2	10 feet long.
Paint, red	...	...	Lbs.	$\frac{1}{2}$	
Pickaxes	...	...		1	
Shovel	...	...		1	
Acid, carbolic	...	...	Bottle	1	For antiseptic lotion.
Kerosine	...	...		1	
Lime, quick	...	...	Cwt.	2	
„ chloride	...	...	Lbs.	28	
Flag, white	...	...		1	Distinguishing flag.
Box for acid	...	...		1	

*Diary of Houses Lime-washed by Military Parties.*

Date.	Houses Lime- washed.	Remarks.	Date.	Houses Lime- washed.	Remarks.
March 13	...	With cases of plague and plague corpses found by lime-washers.	April 15	...	38 1 case.
15	...	15 1 corpse found.	16	...	44 1 case, 1 corpse.
16	...	35, 10	17	...	24
17	...	34	19	...	42
18	...	50	20	...	43
19	...	35	21	...	63
20	...	46	22	...	69
22	...	32	23	...	70
23	...	40	24	...	47 1 case.
24	...	59	26	...	42 1 corpse.
25	...	88	27	...	84 One division.
26	...	132	28	...	20
27	...	122	29	...	29
29	...	96	30	...	19
30	...	92	May 1	...	22
31	...	85	3	...	17
April 1	...	95	4	...	17
2	...	70	5	...	11
3	...	108	6	...	11
5	...	186	7	...	11
6	...	110	8	...	9
7	...	102	10	...	10
8	...	103	11	...	31
9	...	95	12	...	22
10	...	68	13	...	25
12	...	61	14	...	30
13	...	79	15	...	25
14	...	54	17	...	22
			18	...	13
			19	...	10

*Scheme of Lime-washing Parties.*

Parties.	Officers.	British Troops.	Sappers.	Native Infantry.	Carts.	Flag.
10 ... ..	1	10	10	20	10	White.





## MEDICAL REPORT ON THE PLAGUE IN POONA.

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*December 1896 to June 1897, by W. W. O. Beveridge, M.B., Army Medical Staff, Member, Poona Plague Committee, re Segregation and Disinfecting.*

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With the short time at disposal, it is only possible to allude to some of the more important points connected with the epidemic of Plague in Poona.

According to the Municipal Returns for the City of Poona, the plague first made itself known on December 19th, 1896, a case being discovered in Nihal Peth. Whether previous to this it had been lurking among the hordes of the population is more or less uncertain; but it is certain that cases had been imported into Poona from Bombay as early as the beginning of October; and, as the reports issued by the temporary Plague Hospital under the management of the Civil Hospital, show, a case occurred on October 9th, 1896.

A large proportion of the cases, up to the opening of the Government Plague Hospital on February 5th, 1897, were imported, in all probability introduced along the lines of traffic from Bombay, where the disease for some months had been prevalent; at that time out of 170 cases 113 died, so that it may be supposed, as is generally the case at the commencement of the epidemic form of plague, it was of a virulent type.

Entering as it did into a city containing all those elements necessary for the propagation and spread of a typical filth-borne disease, it is not to be wondered at that it speedily and surely secured a firm hold, steadily increasing up to March 10th, 1897, when it reached a maximum, which in all probability would have been higher, but for the energetic measures so ably carried out by the Military Search Parties.

The summary of the work done, and the result gained by the system of Military Search Parties in Poona, as advocated in my report of February the 25th, are embodied in the Report of the Chairman of the Poona Plague Committee.

Allowing for average mortality from other causes, the death roll from plague probably reached 3,000 persons, and the worst week of the epidemic showed a mortality of 189 per thousand of the population.

### *Total Mortality Curve.*

The accompanying chart\* shows the curve assumed by the total mortality in the City of Poona, arranged for convenience in the means of five-day periods, from December the 20th, 1896, to May the 30th, 1897, when the disease had practically declined.

It will be seen that there is a steady rise, with slight fluctuation (January 31st, February 4th), up to the first week in March, and by March the 10th the maximum of 82 was reached. From now there follows a marked fall which may be accounted for by the energetic measures adopted on the 12th and carried out with such praiseworthy zeal by the military workers, the careful and thorough segregation and the disinfection of infected houses.

It was necessary to take the total mortality from all causes, as "Deaths from Plague" were unreliable; but as about one-third of the population had left and had also removed all their sick, the excess over normal (about 7 per day), shows fairly accurately the plague mortality.

### *Nomenclature.*

The plague has from earliest times been disguised under various *alias*, in spite of the identity of the pathological appearances.

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It is the plague of the Biblical and Justinian periods, the "Black Death" of 1348 and 1485, the London "Plague" of 1592 and of 1603, also the "Great Plague" of London and the Provinces in 1665, the Bubonic Plague of the present century, the Volga in Russia in 1871, the Epidemic in Hongkong of 1894, and the present epidemic in India.

*Density Table, City of Poona.*

No.	Peth.	Total population.	Total mortality.	Percentage mortality.	Area in square yards.	Number of square yards per head.	Remarks.
1	Bhavani ... ..	7,661	292	3·08	1,235,000	161·20	
2	Nana * ... ..	7,356	381	5 01	525,000	71·37	
3	Raste ... ..	4,828	114	2·01	365,000	75·60	
4	Nihal ... ..	1,268	† 60	5·01	105,000	76·76	
5	Somwar ... ..	4,516	129	2·08	545,000	120·68	
6	Mangalwar ... ..	2,558	74	2·08	485,000	189·60	
7	Kasba ... ..	13,534	450	3·03	575,000	42·48	
8	Rawiwar ... ..	10,674	574	5·04	325,000	30·44	
9	Ganesh ... ..	4,078	271	6·06	155,000	38·00	
10	Vetal ... ..	5,237	172	3·03	195,000	37·23	
11	Ghorpade ... ..	1,153	36	3·01	655,000	568·08	
12	Ganj... ..	5,425	155	2·09	428,000	75·34	
13	Shukrawar ... ..	16,359	618	3·08	955,000	58·38	
14	Budhwar ... ..	† 6,720	253	3·08	185,000	27·52	
15	Shanwar ... ..	9,132	194	2·01	445,000	48·72	
16	Narayan ... ..	4,257	105	2·05	375,000	88·09	
17	Sadashiv ... ..	15,093	284	2·08	2,275,000	225·40	
18	Bhamburde ... ..	3,334	53	1·06	2,206,220	661·73	
19	Gultekri ... ..	235	6	2·06	2,447,300	10,414·04	
20	Musafargang ..	256	1	3·01	Included in Gang No.12		

\* The mortality from plague in Nana's Peth was large, and the parts where it occurred were densely populated. The 71·37 square yards per head includes much land consisting of open fields.

† Although the mortality is shown as small for no apparent reason, there was much plague here.

‡ Consisted of better class native population.

The term "bubonic fever" is misleading and unnecessary, and the nomenclature should be confined to the term "Plague." The name of "Bubonic Plague" has been taken from the appearances of the local symptoms, as the enlargement of the lymphatic glands are an objective feature; but many cases, especially amongst those of a septic type, show no visible glandular enlargement.

#### *Nature of the Disease.*

It is a disease essentially propagated by filth and insanitary surroundings depending on the presence of the pathogenic bacillus, which here finds the necessary pabulum for its increase, all the factors favourable for the growth of this species of micro-organism being present. From experience, it seems to me impossible that plague can exist, except under insanitary conditions, most especially overcrowding and ground-filth; imported cases may occur anywhere, but with all the elements of cleanliness, light and ample individual cubic space, there is little or no chance of its ever becoming endemic. It is probable that recurrence of the disease may take place in India, but when plague first reaches new areas it is unlikely to become endemic for more than two or three years.

Fortunately for the human race, the plague bacillus is an organism of small virile power, that is, it is killed in comparatively weak antiseptic solutions, such as 1—1000 corrosive sublimate or a 5 per cent. carbolic acid solution, and it also probably readily succumbs to the attacks of other non-pathogenic bacilli, which are always present where the pabulum is abundant. Its mode of increase is, also, not one of spore formation, spores being even more tenacious of life than the parent cell, but by fission. Plague may be looked upon as essen-

tially a house disease and in Asia more particularly a floor one, owing to the filthy mode of living of the ordinary Asiatic. Once having reached a favourable ground, the increase and multiplication is only limited by the extent and nature of the pabulum. Moist organic matter is favourable to its existence, but it is unable to withstand desiccation, and this with a moderate amount of heat up to 58-65° C. causes its complete annihilation in the course of a few hours.

The causes that are favourable to the disease are conditions which invariably prevail in the quarters of the poor, *viz.*, dirt, overcrowding with want of ventilation and light. Dirt seems most essential, for without it the bacillus dies of inanition.

Want of ventilation and light are considerable factors in impeding that desiccation so inimical to the life of the germ. Inoculation seems undoubtedly the means by which infection takes place, whether through mucous membrane or by skin abrasion. There seems little doubt that the naked feet of the native predisposes to the risk of contracting the disease.

This is too long a subject to fully discuss at present in all its clinical and pathological bearing.

*The effect of Density of Population on the Progress of the Disease in Poona.*

As might be supposed, the density of the population had considerable effect on the spread and progress of the disease in Poona. In the three districts of Nána, Ganesh and Rawiwár, which contain the greatest number of inhabitants per square yard, the incidence of the epidemic was most striking; in fact, the table of density and mortality of the various peths makes almost a sliding scale, which brings this point out very clearly:

Peth.				Total population.	Square yards per head.	Percentage mortality, December 1896 to May 1897.
Rawiwár	...	...	...	10,674	30.44	5.04
Ganesh	...	...	...	4,078	38.00	6.05
Nána	...	...	...	5,237	37.23	3.03

The first case of plague occurred in Nihal Peth, which is also one of the dirtiest and which was also responsible for the last case up to the time of writing.

Among the outskirts of the various Peths there was little plague, the houses here being far apart, among gardens and showing no overcrowding, whereas among the densely populated parts it was always noticeable how many houses showed the "plague mark." In the suburban limits there was very little plague, and it was seen that on the people fleeing the city and betaking themselves to the surrounding country encamping out in the fields, there was no increase of the plague among them; nor did the adjacent villages suffer much from the disease. The cases which they removed died there; but the people themselves remained practically free from plague: neither did they seem to again introduce it on their return to the city. The effect of density on mortality may be accounted for by various influences which are the usual concomitants of overcrowding, *viz.*, dirt and the want of ventilation.

These three factors:—

- (a) Overcrowding,
- (b) Dirt,
- (c) Want of ventilation,

have all direct bearing on the disease, and it is their combined influence which so much effects the malady.

By overcrowding and want of sufficient ventilation, the vitality of the people occupying such insanitary houses, is considerably diminished and they fall easy victims on the attack of the disease.

With diminished cubic space the contract and association of the occupants is greater than in dwellings of more liberal dimensions.



Dirt, especially "floor filth" generally of the moist organic variety so largely found in the surroundings and interiors of eastern houses, offers the most favourable pabulum for the nourishment of the microbes.

The cowdung floor, so commonly seen in Poona, should be abolished, were it possible, and all floors raised above the ground, allowing thus a free current of air beneath.

#### *Influence of Temperature.*

The climatic influence for its development and continuance are various.

Although a hot moist climate, with a temperature from 75° F. to 90° F. is favourable for the development of the bacillus, as shown by experience and experiment, yet the domestic conditions under which the people live has probably much more influence. The domestic condition which influences the spread of plague is the herding together of large masses of people in badly ventilated houses, the want of light and sunshine, and the preparation of food in these confined spaces. An increase of the death-rate in an epidemic usually follows wet or cold weather, and the explanation is purely physical and not meteorological. These alterations in climate usually drive the people to seek the shelter of their houses where there is a far greater probability of their being infected with the disease.

The accompanying chart\* shows the relation of the temperature to the total mortality during the epidemic of plague in the City of Poona from December 27th, 1896, to May 20th, 1897.

I am indebted to the Director of the Yerrowda Observatory for kindly supplying the daily maximum and minimum temperatures for that period.

For convenience the means of five-day periods are adopted, and allowing for a probable five-days' incubation period the temperature curve starts one period previous to the mortality chart, to allow for five days effect of temperature.

The mortality curve is traced in yellow, the temperature in blue.

Up to the 2nd week in March, there is with rise in temperature a corresponding rise in the total mortality. From the 22nd to 26th March, with marked fall in temperature, there was a rise in the mortality. With the rise in temperature after period (18) there is a steady fall which might, with the upward curve in temperature, have carried some weight as to the influence of a rise in heat, but for the fact that the operations conducted against the plague by aid of the military were started on March 13th, a few days after which their influence began to be felt, when a steady marked and permanent fall in the mortality curve set in. Up to now, June the 13th with fall in temperature, seven days of damp and rain, there has been no recrudescence.

Temperature then, as far as fluctuation in a district shows, evidently has no relation to the disease.

#### *Conveyance of Infection by Animals.*

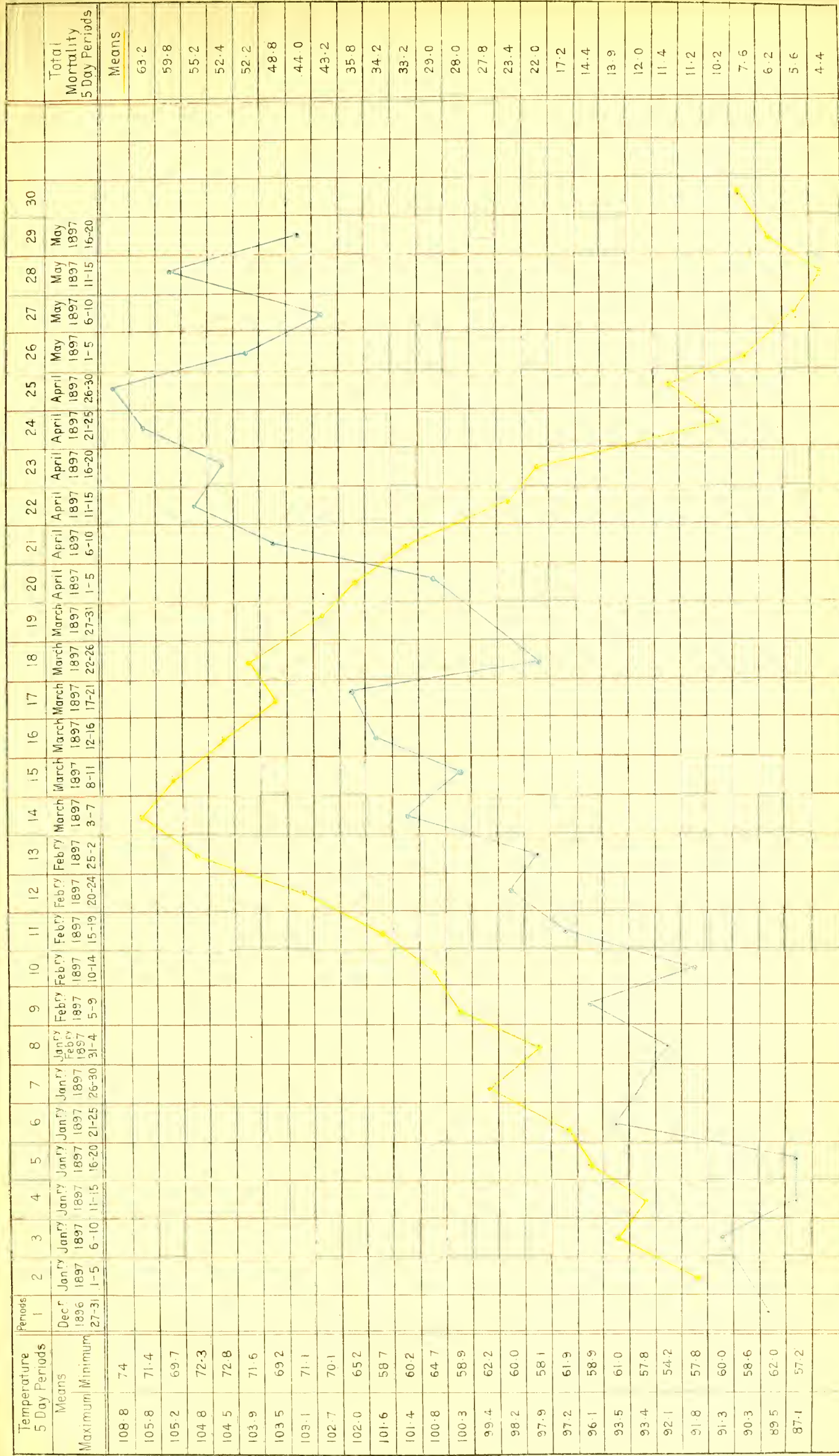
Certain species of animals are liable to infection by plague, the Rodentia more especially. Dead rats are undoubtedly a frequent concomitant of plague, and many look upon them as precursors of the disease; this is, however, probably not so; but rats would naturally fall early victims, as they are inhabitants of the ground and also ground feeders. The presence of dead rats is a valuable indicator pointing to the infection of a locality. To what extent rats, mice, &c., may act as conveyors of the disease is a moot question.

The bacillus is found in all the organs of the rat's body, in which it is found in the human subject. It is possible that the infection is more acute in animals, as in rats and mice the characteristic bacillus is found a few days after infection on *post mortem* examination; whereas in the human subject you find rather more an involution form of the bacillus than the characteristic one.

The excreta of infected rats have been found to contain the bacillus which would infect a dwelling-house and so convey the contagion to the inhabitants. The rats in Poona were not in excessive numbers, but many were found dead of plague as is mentioned in my Memorandum on Disinfection.

However slight the probability of the spread of the disease by this mode of infection, it is certainly desirable to kill all rats possible and to burn the bodies of the dead ones.





W.W.O. Beveridge

Drawn & Litho. Govt. Photoduplication Office, Poona 1898

POONA JUNE 1897

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As a rule the rats on being attacked come out of their holes and, after running around with staggering gait and roughened coat, die rapidly; they also die in their underground retreats, below floors or in drains, their rotting carcases being thus a fresh nucleus for infection.

Flies have been credited with carrying the disease, and one observer has stated that the bacilli have been found on their wings and also in the intestines of mosquitos; yet it is a notorious fact that although nurses and attendants on plague cases have been freely bitten by mosquitos or approached by flies which have been feeding on plague patients, the percentage of plague amongst them has been very small.

I believe that dogs and cats are exempt from the disease, and it is improbable that birds are ever attacked.

#### *Influence of Clothing and Other Fomites.*

The evidence of infection by clothes is conclusive. It is well known how an Asiatic will treasure up any old rags; and in Poona nearly every house contained a large collection of a most filthy kind, and in many cases mats and clothing, soiled by excreta from a plague patient, were found also to be treasured up, eventually to prove a source of further contagion. In every case all rags and also all clothes and bedding used by the sick were at once burnt. It is a well-recognised fact that infected old clothes and old rags are an important means of spreading the disease from town to town, as here the bacillus finds a suitable breeding ground. One of the essential points in combating the spread of the disease is the absolute disinfecting or better still the burning of the clothes worn by the affected person, and the prohibition of exportation of rags, hides and other articles in which the bacilli can find a favourable nidus from the infected areas.

No pronounced opinion can be given as to the effect of clothing on the susceptibility to the disease, but the immunity enjoyed by Europeans is remarkable; in this case other influences, such as better attention to hygiene, environment, food, &c., may affect the result. There can be little question that a naked state of the feet and limbs must largely increase the danger of infection by inoculation.

#### *The Period of Incubation.*

To determine the period of incubation in any disease is always one of extreme difficulty, as there are so many points in any case open to question, and it is rarely that the time can be decided upon to a certainty. There is, however, no reason from experience in the recent epidemic of plague in Poona to alter what has already been decided upon as the period of incubation in plague, namely, from 2 to 10 days.

From the 3rd to the 5th day is probably the period in which the greatest number of cases show the typical signs of the disease. The limit has usually been put down at 10 days, and for all practical purposes, such as quarantine and segregation, this is a reasonable and safe limit. An unmistakable case of incubation, however, is quoted by Wilm, the disease showing itself 15 days after the patient had been committed to a prison, which was free of the disease and without likelihood of any outside infection. Such a lengthened period of incubation must, however, be looked upon as extremely rare.

From experience gained in the Government Segregation Camp, where over 3,400 people passed through, who had been exposed to infection, the period of 10 days segregation was found to be sufficient. One case occurred on the 11th day on discharge and two on the 10th. These cases cannot be looked upon as forming a period of incubation, as there still remains the possibility of infection having taken place in the camp, although every possible precaution, such as the immediate disinfection of all clothing, bedding, &c., vacation and disinfection of the infected hut, and isolation of the cases and members of their families as they occurred, was always strictly observed; the following case, as having some bearing on the period of incubation, may be quoted:—



A shop, where rats presumably dead of plague were found, was closed for a day or so as being infected by plague. It was then opened, the floors dug up and the interior whitewashed. One of the workmen, a youth of 15 years, who had assisted in scrubbing walls and removing the floor, became ill, exactly four days after leaving the shop, and on the fifth was admitted to the plague hospital with a well-marked axillary bubo and other symptoms of plague. After this the shop was again closed and again was linewashed and scrubbed down; another workman, who previously had been quite well, became ill with plague four days after finishing his share of the work, developed a femoral bubo, and died in 36 hours. Here, then, was also evidence of direct inoculation from an infected house—in one case an axillary bubo, where the lad had been engaged in “scrubbing tables” as he said, a possible direct inoculation through the hand, and in the other case a femoral bubo, a possible inoculation through the bare feet.

Cases of plague occurring during segregation cannot be taken to show the period of inoculation individually, but from them only a general idea can be gained. In the Government Segregation Camp of Poona, most cases were found on the fourth day of detention, 9 out of 41, the third and sixth came next with 6 each, and five occurred on the second day. There are possibilities of incurring the disease in the best conducted camp; and again in cases occurring in the earlier days, it is impossible to say how long they had been incubating previous to their admission to camp. It does not follow that other members of a family are attacked from the occurrence of the case nor that the disease was taken from it. Those segregated were as far as possible taken to camp at once, but frequently for potent reasons this was delayed, and although one can say that so many days have elapsed from admission into camp or from the date of a case occurring in their homes, yet one can only with difficulty reach an accurate period of incubation, not being able to follow the movements of the people previously.

#### *The Medical Inspection of the Dead.*

The value of this system cannot be over-estimated, as by this means the earliest intimation is conveyed as to:—

- (a) The infection of a town.
- (b) The re-infection of a previously infected town.
- (c) The actual number of plague cases in an infected district.

It also enables the immediate disinfection of the house where the case occurred and the segregation of the inmates.

This system was commenced in Poona immediately the Search Parties ceased their work, when the disease had almost been stamped out, and it is at this period that the system is so specially valuable, as the information which the Search Parties conveyed would be no longer forthcoming. The system has worked most admirably in Poona and with no opposition from the people. When from any cause an objection to the examination was made, the death was considered as due to plague and the house disinfected and occupants segregated.

With regard to the recognition of a plague corpse, anyone who has had much experience among plague would have little difficulty from the general appearance combined with a diagnosis by exclusion.

Those having a bubo developed externally present no difficulty at the present time in Poona; those reported as having died from pneumonia must be treated with suspicion and carefully inquired into, as these cases are frequently plague. Abortion and premature labour must also be looked upon with misgiving, and while dealing with this an exemplification may be instanced.

A child was certified by a Native medical man as having died from natural causes at birth and that the mother was ill but free from plague; regarding this with suspicion, I visited the case and found the mother, a girl of about 17 or 18 years, with all the signs of a septic disease with high temperature; the child born was one of about six months. As she was too ill to move she was left in the

house, where previously a plague case had occurred, and died in the evening. On examining the corpse later, I found a femoral bubo had developed and all the symptoms of the septic form of plague.

The signs of death from plague which may be looked for, are :—

*1stly*—The presence of a bubo which after death remains; a favourite trick of relatives was to place the body on the side of the bubo, or to leave the head over in the case of a cervical bubo, or to place the arm tightly to the side in an axillary one and allow the body thus to stiffen in order to hide them.

*2ndly*—Hæmorrhages from the stomach, intestine or nose; the presence of petechiæ and extravasations of blood beneath the skin.

*3rdly*—Sordes on the lips and teeth; and the state of the tongue, which after rigor mortis has set in cannot be examined.

*4thly*—A rise or continuance of temperature above the normal after death. In one marked case, of a woman who had been dead for  $2\frac{1}{2}$  hours and who had a well-developed bubo, the temperature in the axilla registered  $104\cdot2^{\circ}$  F.

*5thly*—The surroundings of the body should be carefully observed for evidences of hæmorrhages, pneumonic sputa and other discharges.

*6thly*—Hypostasis or *post mortem* staining starts early and is generally excessive; also swelling of the features is of frequent occurrence.

To carry out this inspection efficiently, it is necessary to have a segregation party ready to segregate, where it is necessary, in order to avoid the further spread of the disease.

#### *Type of the Disease in Poona.*

I am inclined to believe that the type of the epidemic in Poona was not of so virulent a nature as in Hongkong in 1894, although it was responsible for a large number of deaths.

According to my own observations the chief type of the disease in Poona was the bubonic, that is, those showing glandular enlargement. The glands most affected being either the oblique or vertical chain in the groin; perhaps the inguinal were more affected in women and the femoral in men. Enlargement of other sets of glands, such as the axillary and cervical, were frequent also in the parotid.

Three cases of double sets of glands being affected came under my notice, two where the popliteal gland below the knee was affected and suppurated with cuseumy lymphangitis of the thigh extending to the femoral glands. The third case where the gland at the elbow was primarily affected by a typical bubo with rapid extension to the axillary glands of the same side.

It seems probable that these bubonic cases are much less dangerous in point of contagion and can be approached with more or less safety, whereas the septic type of the disease, namely, cases in which the bacillus is freely found in the blood, is highly dangerous to those in the immediate vicinity.

At the commencement of the Poona epidemic, there was a fair proportion of these septic cases, characterised by hæmorrhages from the stomach, lungs and intestines, and a peculiar form of pneumonia, accompanied by diarrhoea, meningitis, delirium and other nervous symptoms.

The petechial form of the disease, the one which led in former times to the name of the "Black Death," was extremely rare. One case in the Mahomedan hospital with what was termed "necrotic disease or ulceration" bore, I think, no relation to the disease, as this condition must have existed a long time previous to the attack of plague.

The septic form of the disease is very fatal, death coming about by the sheer virulence of the bacillary poison or by consequent heart failure, pneumonic hæmorrhage, exhausting diarrhoea or meningitis.



Most of the cases I examined with inguinal or femoral bubo had no enlarged glands caused by old standing diseases, such as syphilis. It is a point worthy of inquiry whether old standing inflammation of the lymphatic glands such as syphilis would lead to the bubonic or septic type of plague.

Syphilis and plague may be concomitant, that is, a man with syphilis may also be attacked by plague; also it seems possible that small-pox and plague may co-exist.

Nervous complaints very commonly followed cases convalescent from plague. Insanity, general paralysis, also local paralysis, were observed.

Local paralysis was chiefly confined to a certain group of muscles such as the laryngeal causing aphonia or else attacked the palatal, sometimes also the lingual. One interesting case occurred in the Mahomedan hospital, which showed well-marked aphasia. A girl aged 25 was admitted with high fever  $104^{\circ}$  F. to  $105^{\circ}$  F., femoral bubo and much frontal headache. Four days after the fever had abated and seven days after admission to hospital, she suddenly lost speech, being unable at first to form any words. Her intellect remained fairly clear, but her memory was defective, but she indicated she understood what was said to her. On careful examination there seemed to be no paralysis of any muscles of phonation, palatal or laryngeal; ultimately her speech returned, but remained of a hesitating type. In another case, hamiplegic in type, a man, whose attack of plague was accompanied by much vomiting and high fever, on fall of temperature suddenly lost power of speech. Here the tongue and uvula were deviated to the right and the reflexes were exaggerated. He gradually regained power of speech, but his words were husky, indistinct, hesitating, with difficulty in phonation. He was constantly frowning and remained for various periods in an apathetic state, but understood fairly well what was said to him.

Spastic paralysis was observed, but the former history was doubtful.

Hysteria certainly was developed, but this was probably consequent upon the great weakness and depression, which is felt during convalescence and in many cases was due to the want of judicious administration of stimulants.

A large proportion of cases die of heart failure, and it is of importance to note that this heart failure is not one of cardiac degeneration; on *post mortem* examination we find little or no fatty degeneration or infiltration of the cardiac muscular fibre, and there is rarely any marked increase in size. In one case of a child who ultimately died, there was marked dilation of the right side of the heart, but there was also pleurisy present.

The heart failure seems to be one of central origin, and indeed this is quite compatible with the marked nervous symptoms which accompany the disease; and which point to plague being a disease of septic intoxication with poisoning of all the cerebral centres, the result of the bacillary action.

Luckily in Poona the European population was singularly exempt from the disease; but it is possible that the conditions under which Europeans live in Poona is accountable to a large extent for their freedom.

There is comparatively little or no contact with native surroundings, with the exception of servants' quarters attached to bungalows where, indeed, some cases did occur. Where every attention is paid to cleanliness and sanitation, there is little risk to Europeans, when not brought into actual contact with the disease. Of the three Europeans attacked, one was a medical man employed on plague duty, the other a reporter of a newspaper, whose duty required his attendance in the city when the plague was raging. Both were bubonic and both luckily having mild attacks recovered. The third was a visitor from Bombay.

Pregnant women invariably aborted with death of the foetus which was followed in all cases by death of the mother.

#### *Segregation.*

The value of this measure in all epidemics of infectious disease is very evident, but in the outbreak of plague in Poona these measures were probably



more rigorously and efficiently carried out than in any other epidemic of which there are records.

The measures were carried out with military exactness and under medical supervision.

On the absolute necessity of the isolation of the sick in this disease, as in all other infectious diseases, it is unnecessary to dilate, but the segregation of the probably infected, as carried out in Poona, is to a large extent a novelty; it may be interesting to describe more fully the measures adopted and the effects of this procedure on the epidemic.

The persons segregated were those occupying the house from which the infected patient was removed; they were in fact treated as "suspects."

A very essential feature of the segregation was the thorough disinfection of all clothing of those segregated, and to this process is undoubtedly due the smallness of the number who were subsequently removed to hospital, suffering from the disease.

The daily inspection of those segregated is also most valuable as insuring the prompt removal of the infected to hospital and so preventing them from becoming fresh plague centres.

The word segregation means to separate, and as applied to Epidemiology is taken to be the separation of those who have become liable to infection by being in contact either with :—

- (A) Those who have the disease developed.
- (B) Those who have the disease incubating.
- (C) Infected houses and environments of the disease.

As applied to a disease, with such rapid tendency to propagate, as plague, the importance of segregation cannot be over-estimated. Not only has infection from the proximity of those suffering from the disease to be guarded against, but more especially infection from the infected houses.

The advantages obtained by segregating those thus exposed to the risk of plague are :—

*1stly*—That those, in whom the disease may be incubating, are, on the appearance of the disease, immediately transferred to hospital, saving further risk of infection.

*2ndly*—The removal of the inhabitants of an infected house gives time for thorough disinfection, and the germs in such infected houses have time to die under desiccation.

*3rdly*—Even though the people segregated may not be liable to plague themselves, yet they may be the means of disseminating the disease through their clothes. These latter are disinfected on arrival in camp.

Active operations for the suppression of the epidemic in Poona may be said to have commenced on the 12th of March 1897. The disease first appeared in the city about the middle of December 1896 and previous to the military operations the task of coping with it was entrusted to the Local Native Municipality. Towards the beginning of February, Surgeon-Captain Lloyd Jones, I.M.S., was sent to Poona, and he instituted a limited system of disinfection and a personal search for plague-stricken people; segregation of course he found impossible to enforce and none was attempted. His individual efforts, though marked with the greatest personal energy, were useless in face of the strong native prejudice against official interference, and the passive indifference of the Native Municipality, and the epidemic continued to spread with increasing rapidity.

On February 5th, a Plague Hospital was opened at Sangum and a few patients were persuaded to voluntarily trust themselves to treatment, whilst a certain number more were forcibly removed there.

The majority of people, however, attacked at this stage of the epidemic were secreted by their relations and died in their own houses. In the first week

in March the mortality in the city, which was then half deserted, had risen to 431 against 70, the normal for that time of year, with a full population. These figures would show that the rate of mortality in Poona at this period was twice as great in proportion to the normal population as it was in Bombay, at the height of the epidemic in this latter city.

At this stage the Government of Bombay decided to entrust the suppression of the disease to an European Committee consisting of three members—one Civilian, one Military and one Medical, and at the same time they placed at their disposal 900 Volunteers from the troops of the Poona Garrison. These troops marched out of the Cantonment on the 12th of March and commenced operations the following day.

During the first week of the operations segregation was only attempted on a limited scale, as it was at first thought impossible to deal with every infected house in this manner and only the occupants of houses in which cases were found by the Military were removed whilst the remainder of the cases, *viz.*, those found by Municipal Agency and those found by the Police were not so treated.

The work of removing the inmates was entrusted to the Native Infantry, and after the first week a scheme was propounded and approved of by the Committee whereby the sepoys were divided up and the inhabitants of every infected house removed.

Eight sepoys were allotted to each search party whilst the remainder were employed in the removal of inhabitants from other parts of the town. This scheme was found to work satisfactorily, and by the end of March the average daily population of the Government Segregation Camp was close on 600.

The duties of the men employed with the search parties were simply to remove the inmates of any house in which a case was found. The method adopted for the remainder of the city was briefly this: (a) daily list was furnished to the Officer in charge of the Native troops, Lieutenant Owen Lewis, who was accompanied by a Native guide. The various houses marked were visited; on arrival at a house, it was surrounded by the soldiers and every one on the premises removed to the Segregation Camp.

The occupants were allowed half an hour to collect their bedding, cooking utensils, and a change of clothing, and one was left in charge to look after the house. The employment of the hard-and-fast rule that every one actually on the premises should be removed was found to be the only way of avoiding the numerous complaints and excuses that would otherwise have invariably been offered.

As soon as the people understood this, but very few complaints were made, and as a proof of the excellence of this system during the whole course of the epidemic, only one man was found to have been removed without apparent justification and this man was set free.

After the troops had been engaged in the city about a month the work of segregation became more difficult, as it was found that the inhabitants cleared out of the infected houses during the hours it was known the troops were out, and it became necessary to adopt new methods.

Two or three times a week a party of sepoys, under Lieutenant Owen Lewis, visited the city about 10 o'clock at night and those infected houses in which traces of occupation but no occupants had previously been found were searched, and any one found there removed.

A large majority of the people sent to the Segregation Camp were found in this manner, who otherwise would never have been discovered.

The arrangements for the housing of the people in the camp during the period of segregation was as follows:—

An area of ground, nine acres in extent, was rented at a convenient distance from the city, and 60 grass huts separate from one another were erected in lines in order that, on a case of plague occurring in any of them during occupation, it could be easily vacated and disinfected without greatly disturbing the regime of the camp. Each line and every hut was numbered for convenience and the newest arrivals in camp were,



for obvious reasons, placed in those huts which had been longest vacant. The entrance and all exits were guarded by sentries, composed of Native Infantry, who were encamped in the Segregation Camp itself under the charge of a Native Officer.

No one, except those having direct business in the camp, was allowed to enter without a pass, granted by the Medical Officer in charge. In order that those segregated might make their wants known to their friends, a barrier was erected at the entrance where they could hold converse with those outside and arrange any matters of domestic importance.

A party of six European soldiers, under a Non-Commissioned Officer, attended daily to carry out the disinfection of all clothing and bedding on arrival; and to accomplish this a disinfecting shed, containing the necessary cauldrons and disinfectants, was erected in the camp near the entrance, with a drying ground in its vicinity.

The method of disinfecting was as follows :—

On arrival of the people their changes of clothing, bedding, &c., were taken and at once disinfected by boiling for 15 minutes and then dried in the sun; those articles which could not be boiled were disinfected with perchloride of mercury solution 1—1,000 or 5% solution of carbolic acid.

On return of the changes of clothing, the clothing worn by them was also similarly disinfected and they were also required to take a carbolic bath. Any hut in which a case of plague occurred was at once vacated, disinfected with corrosive sublimate, the floor removed, and allowed to remain vacant 10 days if possible. The people were in no way ever put to any inconvenience by this.

The water-supply was obtained from a well adjacent, and the latrine accommodation was ample and was inspected daily, the excreta being treated with chloride of lime.

Three Banyas' shops were set up in the camp, where the people could buy good food at bazar prices; there was also a milkman and vegetable seller.

Every person below the class of clerk was allowed 2 annas a day, and money and blankets, &c., were given from Mrs. Duncan's fund to the sick and needy.

The people in camp never made any complaints to me, and many were loath to leave and frequent applications for entrance were submitted. It was interesting to note the great improvement in health and cleanliness of the people after their 10 days' sojourn in the camp.

The Hospital Assistant at the camp inspected the people every morning and night.

The Medical Officer in charge also saw daily every person in camp, numbering sometimes 700, and carefully inspected those for discharge. Any doubtful cases were detained under observation in a hospital in the camp. In this way many of the cases were found.

#### *Statistics.*

From March 12th to June 12th, 3,461 people were admitted to the camp. Among these, occurred 41 cases and 7 deaths from plague.

The subjoined tables will be of interest as throwing some light on the much-debated question of the period of incubation, but must be for this object received with reserve :—

CASES OF PLAGUE IN THE SEGREGATION CAMP.*													
Day of Segregation on which the disease appeared.													
Day.	1s.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.	Total.
Number of cases ...	4	5	6	9	6	3	2	0	2	2	1*	1†	41

\* Including Mahomedan Segregation Camp.

† Mentioned under incubation.



## DEATHS FROM PLAGUE IN THE SEGREGATION CAMP.

Day of Segregation on which the death occurred.							
Day.	1st.	2nd.	3rd.	4th.	5th.	6th.	Total.
Number of deaths ... ..	1	1	2	2	1	0	7

It will be seen that 50 per cent. of the cases occurred on the 3rd, 4th and 5th day of segregation.

Lieutenant F. Owen Lewis, in whose hands under my supervision the work of segregating the probably infected inmates of houses fell, carried out this duty with the utmost zeal and discretion. Without him, and the assistance rendered by the sepoys under his command, the work in connection with my inspection of the dead would have been difficult indeed.

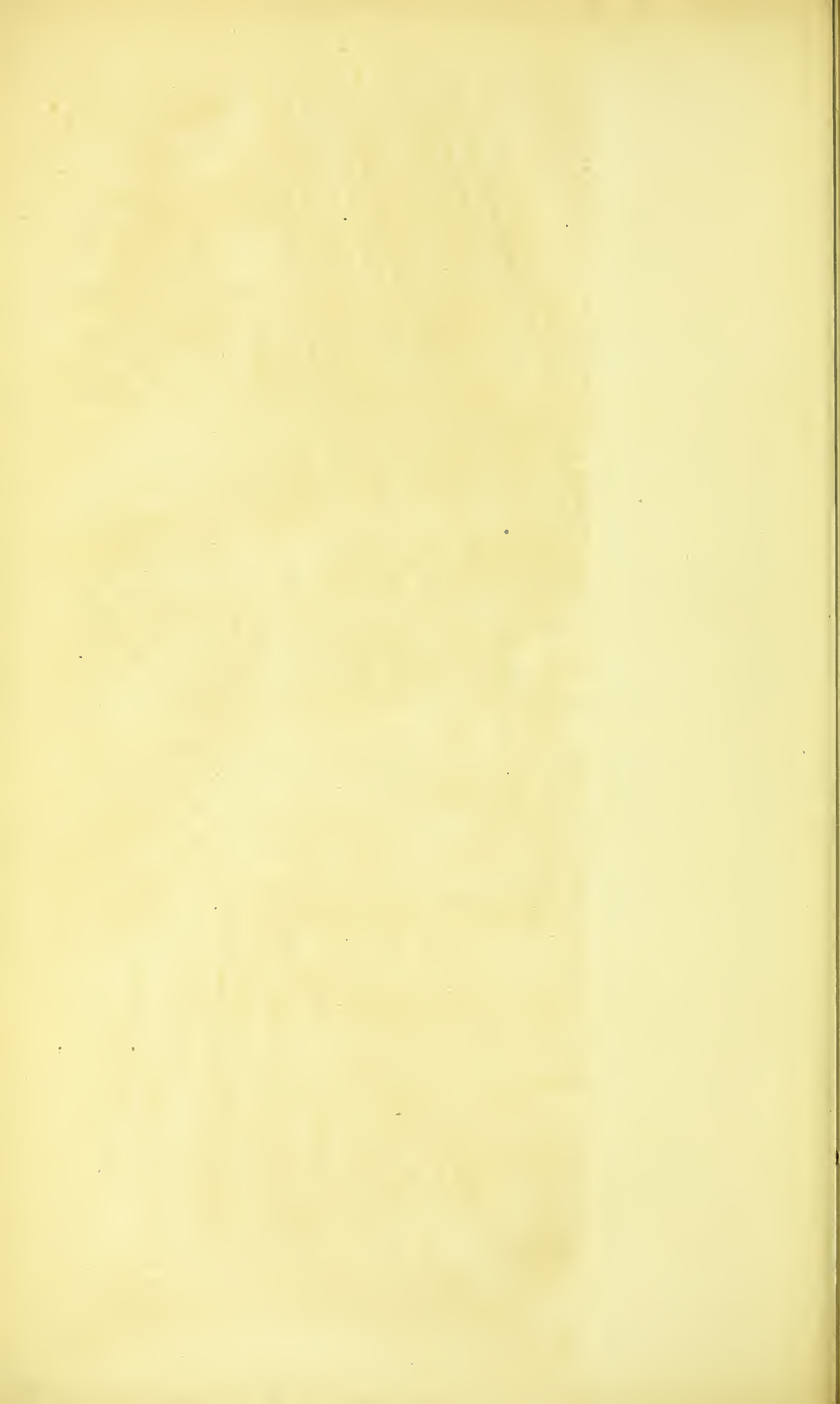
In conclusion, it may be allowed that the measures adopted in Poona to suppress the plague have been eminently successful; for although more than a month has elapsed since the withdrawal of the troops, there has been practically little or no plague, and since the 16th of June, when an imported case was discovered, no further cases have occurred in spite of a varied condition of climate.

It is impossible to over-estimate the value of the work performed by the troops and without their aid, aid that could only be rendered by a disciplined body of men, with a keen sense of their duty, unapproachable by bribes and untiring in their efforts, no success could have been attained. Every officer and man engaged in the operations performed his duties with unceasing zeal, displaying the greatest tact, fortitude and patience in the midst of most trying circumstances. Mr. M. K. Kumthekar, the Municipal Secretary, was always of the greatest assistance and rendered valuable aid in matters relating to the Segregation Camp and the work now in progress, *viz.*, the examination of the dead in Poona.

Dr. Benjamin Soloman, who worked with me before the search parties were introduced, has given the greatest assistance both then and while working under the Plague Committee. A large proportion of the cases of plague discovered were due to his unceasing efforts and vigilance. Dr. Anant Bhawanishankar has also shown considerable zeal and given able assistance in assisting to carry out the work of inspecting the dead on the withdrawal of the search parties.

W. W. O. BEVERIDGE, M.B.,  
Surgeon-Captain, A. M. S.







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